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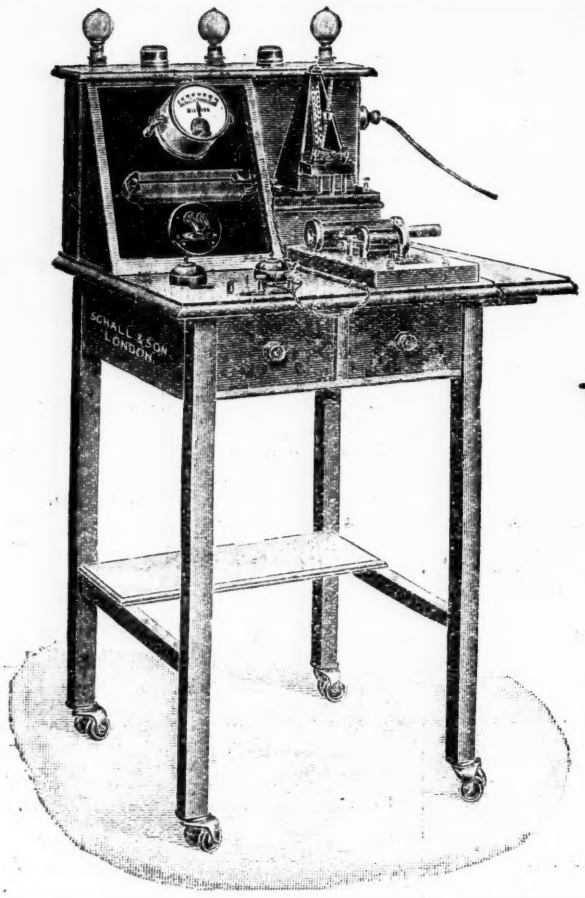

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THE TREATMENT OF THE BLADDER IN GUNSHOT INJURIES OF THE SPINAL CORD.

BY

FRANK KIDD, F.R.C.S.,

SURGEON TO, AND SURGEON-IN-CHARGE OF THE GENITO-URINARY DEPARTMENT, LONDON HOSPITAL.

THE question of the best method of dealing with the paralysed bladder after gunshot wounds of the spinal cord is ripe for discussion in the light of war-time experiences, and of certain researches carried out by Henry Head and Riddoch,* which were published in *Brain*, vol. xv, Parts 1 and 2, 1918. Before the war the profession seemed to be obsessed with the idea that very little could be done for these unfortunate sufferers. This was because the old teaching was largely based on inadequate observations and false assumptions. It was commonly taught:

1. That the bladder once paralysed was unlikely to recover.
2. That the "trophic" nerves to the bladder being damaged, cystitis and pyelitis were almost inevitable.
3. That "automatic" bladder was an extreme rarity (many authorities indeed stated that it could not exist).
4. That patients with injured spinal cords seldom recovered from their paraplegia.

These ideas need considerable modification as the result of war-time experience; I think it can be shown that these cases are not nearly so hopeless as was at one time thought, and that it is worth making every effort to secure for them a clean automatic bladder. Only by so doing can we do away with the chief cause of death, and enable these patients to live a reasonable life of comfort. In some favourable cases we can hope to see them recover from their paraplegia and take up their beds and walk.

The article of Head and Riddoch should be read and digested by all who are interested in the subject, but the following abstract will be convenient for the present purpose.

THE RESEARCHES OF HEAD AND RIDDOCH.

After gunshot injury of the spinal cord the bladder wall may suffer (1) overdistension and atony, and (2) cystitis and fibrosis, conditions which prevent the establishment of automatic bladder.

The paper applies to a third class where the bladder has not been allowed to become overdistended and has been kept comparatively clean. Even in this class there are exceptions when there is profound toxaemia from bedsores. In that case the cord does not sufficiently recover its tone to permit of "spreading reflexes," and consequent automatic flushing of the bladder.

If the bladder has been adequately treated what may happen after some weeks is—

1. To begin with there is occasional and fitful evacuation.
2. Later there is fitful evacuation with a certain amount of dirty residual urine. The catheter is still needed twice a day for lavage purposes.
3. Finally a regular automatic bladder is established, and the bladder empties itself partially or completely at regular intervals without a catheter.

This automatic action can be reinforced by peripheral extravesical stimuli such as swabbing the penis, tickling the soles of the feet, or the anus, or the abdominal wall, or by deep breathing.

The length of time before automatic action can become established is—

1. In partial lesions in fourteen days or more.
2. In total lesions in twenty one to twenty-eight days.
3. In sacral lesions in three to four months.

Precautions needed to secure automatic bladder—

1. In washing the bladder no pressure must be used which would overstretch the weakened musculature.
2. Severe cystitis must be avoided which would cause degeneration of the musculature and fibrosis of the bladder wall.

When a bladder has learnt to empty itself automatically at a certain size it can be made to act at a smaller size by making use of "mass reflexes," such as tickling the skin of the abdomen or deep breathing. Even in a lesion of the cauda equina an automatic bladder once established could be made to respond more easily by the use of these reflexes. Combined with the detrusor response to these reflexes there is also an inhibitory response to the tonic action of the sphincter muscle when a catheter is not *in situ*.

* A leading article on these researches was published in the BRITISH MEDICAL JOURNAL on April 20th, 1918, p. 457.

Conditions which Influence the Action of an Automatic Bladder.

A. In the central nervous system: (1) Response to tension on the part of the detrusor muscle; (2) relaxation of the sphincter muscle; (3) extravesical "mass" reflexes. These hold good even in the complete absence of the spinal cord. The site of the lesion in the cord makes no difference.

B. Shock, fever, and other general states. Cystitis, septicaemia, fever tend to diminish all reflexes.

The "Mass" Reflex.

In a higher animal with an intact central nervous system the reflex response to a stimulus applied to the skin tends to be limited, well defined, and purposeful, and to exhibit a "local signature"; that is to say, the muscular response evoked by the stimulus tends to direct its action to the purposeful removal of that stimulus. The primitive mass flexor reflexes of the spinal cord are thus overshadowed and controlled by the higher functions of the brain.

When the spinal cord has been completely divided the lower end may, after some time, recover its tonic influence and reflex excitability. The reflexes, however, now assume a form in which they have lost to a great extent their "local signature," and the responses are widespread, ill defined, and purposeless. A stimulus applied to the skin of the leg or abdomen may now produce not only a violent flexor response of the leg but automatic emptying of the bladder and rectum, and excessive sweating. Injection of fluid into the rectum and bladder may also act as a stimulus and produce excessive sweating and a flexor response of one or both legs. Deep breathing will also produce automatic emptying of the bladder.

This type of reflex has been named a "mass reflex" to distinguish it from the normal type of reflex in animals with an intact spinal cord, which is a "type reflex with local signature." Extensor tonic reflexes which control the upright posture of the body appear to be centred in the mid-brain and pons. Flexor reflexes or spasms which permit sudden withdrawal of a limb from a painful contact are the oldest in the phylogenetic scale, and betray their primitive origin—that is to say, the reflex mechanism by which they act lies chiefly in the spinal cord.

When the cord is cut off from the brain intense pain and discomfort can not only evoke a withdrawal of the lower extremity but can also lead to definite visceral reflexes. Urine is passed, the rectum is emptied, and the sufferer sweats. This resembles the reflex of fear.

When the spinal cord is cut across and shock has passed away, the lower end of the cord regains its primitive reflex activity uncontrolled by any influence above the lesion, such as the reflex extensor tone taking origin in the pons and mid-brain. The only response now is a "noci-receptive" reflex—a vast outburst of motor energy, not confined to the parts stimulated, overflowing into visceral channels, a profound shrinking away of the animal from harmful stimulation. Not only is the spread of the reflex activity greater than under normal conditions, but the receptive field from which it can be evoked is unlimited below the lesion in favourable cases.

This is the "mass reflex," which cannot occur under normal conditions of higher neural control, though it may occur under violent affective stimuli, as with the emotion of fear.

The great practical outcome of Head's work, apart from its enormous theoretical interest, is that he has shown how to make use of these mass reflexes in gunshot wounds of the spinal cord, in order to abolish the permanent use of the catheter. As it is in most of these cases the catheter that kills, this knowledge will undoubtedly save a great number of lives.

POSTULATES.

If, then, we consider the facts brought to light by Head, we see that the two postulates for obtaining an automatic bladder are:

1. *The paralysed bladder must never be allowed to become overdistended and stretched*—for if this is permitted the bladder muscle cannot recover its tone and automatic action is impossible.
2. *The paralysed bladder must be guarded from severe infection*—for if severe infection is permitted the muscle in the bladder wall is destroyed, and is replaced by fibrous tissue which is incapable of automatic contraction.

These two postulates must be used in determining the real and ultimate value of any method of dealing with the paralysed bladder in the first six or eight weeks following an injury of the spinal cord.

WAR-TIME PRACTICE.

During the war it has been the common practice to deal with the paralysed bladder in cases of gunshot wounds of the spinal cord by one of three methods: Either a catheter has been passed intermittently, or suprapubic cystotomy has been performed forthwith, or no catheter has been passed at all and the bladder has been emptied at frequent

intervals by massage and pressure applied above the pubes.

There is also a fourth method, which I have consistently used in these cases, which saves the surgeon's time, renders the nursing much easier, and leaves the patient in the most favourable condition for recovery—and that is the method of the "tied-in catheter."

This method, to my mind, is on the whole the most fool-proof, and is therefore the best fitted to render the patient a fit subject for the establishment of "automatic bladder."

I will begin by discussing the advantages and disadvantages of the first three methods, which have been so extensively employed during the war; the first two should, I think, be discarded, leaving the field for a final decision between the third and fourth methods.

1. *The Method of the Intermittent Catheter.*

A soldier is wounded in the spinal cord, and suffers as a consequence immediate paralysis of the bladder. A catheter is passed on an average twice in twenty-four hours on his way down the line. Under the conditions of warfare it was almost inevitable, with this method, that before a week was out, and by the time he arrived at a base hospital, the bladder had become severely infected and the urethra might be in an inflammatory and bleeding state, which rendered each successive catheter more difficult of insertion.

By this method there is grave danger to life from cystitis and pyelitis, and the bladder wall becomes stretched from overdistension, its wall being paralysed, and the catheter not being passed often enough or regularly enough to secure that the bladder wall is not overstretched.

A few weeks after arrival at a base hospital pyelitis sets in and is often fatal, or if fatal pyelitis is avoided the urine becomes ammoniacal and a phosphatic stone grows in the bladder. Even if these dangers be avoided the result of the overstretching and the sepsis is to render the bladder wall a fibrous envelope, which loses for ever its power to contract automatically, so that permanent catheterization becomes a necessity.

Even were the conditions for the frequent passing of a catheter in war time more favourable than they are, it is my impression that many surgeons are not familiar with the importance of adequate urethral irrigation before the passage of a catheter.[2] Had this method been more widely known and practised it is my impression that severe cystitis would have been to a much greater extent avoided and prevented. This method, then, offends both the postulates assumed at the head of this section, and should be discarded.

2. *Immediate Suprapubic Cystotomy.*

This, a second method, was suggested by Thomson Walker.[3] He advised this method without apparently having practised it in any of his cases before publishing—at least, so I gather if I read his paper rightly. This was, I think, unfortunate, as suprapubic cystotomy was widely used in certain of the clearing stations by surgeons who were not already practised in the most recent methods of suprapubic cystotomy with a mushroom drain, and who were not sufficient masters of modern methods of irrigation of the bladder and in the use of urinary antiseptics by the mouth to secure a clean condition of the urine after operation. The great advantage of this method, if performed at once, is that it does prevent overstretching of the bladder muscles—a very important point.

But it seems to me that it renders the dressing and nursing of these cases even more difficult and time-consuming than they are with the first method, and it certainly tends to make more difficult the avoidance of bedsores and the keeping of the skin of the abdominal wall healthy. This is true if suprapubic shields or ordinary dressings are used, but not to the same extent if a mushroom tube is used as a drain, so as to prevent the leakage of urine on to the skin.

Suprapubic cystotomy, then, saves the time of the surgeon but not that of the nurse, and is not really of great benefit to the patient, for it has been my experience that severe cystitis is the rule rather than the exception in these cases, with consequent pyelitis or formation of stone in the bladder. But a greater objection is that if "automatic bladder" becomes established it is still very difficult to get the suprapubic fistula to heal soundly and permanently, as the suprapubic opening remains the easiest way for the urine to find its outlet in automatic action rather than the urethra guarded by the spastic hypertonic sphincter muscle.

This method, then, conforms with the first postulate but offends the second postulate, and I think it should be discarded in favour of one of the last two methods.

3. *The Method of Mechanical Expression.*

The third method was, I believe, first widely adopted in France in 1917, and has been largely used ever since. It consists in expressing the contents of the distended bladder through the weakened sphincter by means of pressure and massage applied above the pubes to the bladder through the abdominal wall. Some men are accustomed to aid this expression by means of a gloved finger in the rectum. The great advantage claimed for this method is that it is said to conform with the second postulate, and that it does diminish the danger of sepsis. It is stated that if no catheter is passed the urine will always remain sterile. All the same I am not yet convinced that this is an accurate statement, and I believe that if the actual state of a series of bladders so treated were to be ascertained, it would be found that many had become infected through the blood stream and kidneys.

On the other hand, if this method is not to offend the first postulate it needs to be carried out at least four times a day, and this means a great application of time and patience on the part of the surgeons and nurses, and it also means that the massage must never be omitted or forgotten for any length of time. Otherwise the bladder muscle will become overstretched by distension, and the muscle will be unable to recover its tone.

If it can be proved by actual results that automatic bladder does become established in a proper proportion of cases so treated, then I think this will turn out to be the method of choice. At the same time, any one adopting this method will have to be prepared to be absolutely regular in his attendance, and, if the case is passed down the line, to see that the massage is not neglected on the way but is continued by all the other men into whose hands the case will fall.

4. *The Method of the "Tied-in" Catheter.*

It now remains to discuss a fourth method, which I have employed consistently throughout the war in dealing with these cases. I was first led to employ it as it seemed to me to save the surgeon's time, to render the nursing far less arduous, and to add immeasurably to the comfort of the patient. The advantages are that there need be no bleeding urethra, no stretching of the bladder, that sepsis is of the mildest description and easily controlled, that the urine can be kept acid so that stones do not form, and pyelitis is less likely to supervene. The skin of the back cannot be soiled with urine, so that there is one less predisposing cause of bedsore, and the surgeon has to pass a catheter at most twice a week.

If the soldier can be steered through the first six to eight weeks of his disability, and if the bladder has not been stretched and has not become too septic, and if in other respects the patient's general condition is good and free from sepsis (bedsores, lung troubles, or other wounds), then it will be found that automatic flushing of the bladder becomes well established, and the need for further catheterization and lavage can be largely if not wholly dispensed with, to the utmost satisfaction of doctor, nurse, and patient. I can describe this method best if I append some instructions I drew up for the information of other surgeons in a military hospital.

GUNSHOT WOUNDS OF THE SPINE.

A Good Method of Dealing with the Paralysed Bladder by the "Tied-in" Catheter.

Assemble the following articles:

1. An irrigating tin with rubber tubing and glass nozzle attached. Boil these.
2. A No. 9 or No. 10 (English scale) rubber catheter. Boil this.
3. A bottle containing oxycyanide of mercury—1 part in 30 of water.
4. An antiseptic lubricant—namely, tragacanth 2 parts, glycerin 20 parts, oxycyanide of mercury ¼ part, distilled water 100 parts. To be put up in a tin squeezer tube.
5. A small safety-pin, two pieces of silk or tape, a narrow piece of strapping.

Fill the irrigator with two pints of water at 100° F., and add two drachms of the oxycyanide of mercury solution. *Irrigate the urethra with this solution, so as to cleanse it before passing the catheter.*[2] Lubricate and pass the catheter, and make sure the eye

is lying snugly in the bladder. Fix a safety-pin in the catheter, tie a piece of tape to each end of the pin, and carry these along the sides of the penis, and fix them there with strapping. This strapping should be just tight enough to control the tapes, and yet not so tight as to cause oedema of the prepuce. The tied in catheter should be left draining into a bottle all the time so that the bladder never becomes distended—a most important point. The bladder can be irrigated with the oxycyanide of mercury solution (one drachm in one pint) twice a day. Be careful not to hold the irrigator higher than six inches above the level of the penis, so as not to force the bladder muscles; run in two ounces only of the lotion at a time, and then allow it to flow out again into a dish. Repeat this manœuvre five or six times. If the urine is very purulent, and especially if it is alkaline, irrigate four times a day. If the urine is acid, give this mixture by the mouth six-hourly:

Hexamine	...	5 grains
Acid sodium phosphate ...	...	30 grains
Water	to	1 ounce

If the urine is alkaline give six-hourly:

Boric acid	...	15 grains
Ammonium benzoate ...	...	15 grains
Water	to	1 ounce.

Remove the catheter every fourth day, irrigate the urethra and tie in a fresh one. If this is not done the catheter may get blocked and the bladder stretched, and it may even give rise to perineal abscess.

By tying in the catheter several objects are gained:

1. Time is not wasted by passing a catheter frequently.
2. The urethra is not damaged by the constant passing of a catheter.
3. The bladder muscle is not overstretched, so that automatic bladder can be established in a few weeks' time.
4. It is easy to carry out lavage, the urine remains clean, and pyelitis and stone are prevented.

In any lesion of the spinal cord above the cauda equina, if the bladder muscle is not allowed to become overstretched, an "automatic bladder" becomes established in from three to six weeks' time, or occasionally in a little longer time. If "automatic bladder" has become established at the end of three or four weeks the catheter should be removed altogether, and simply introduced once or twice a day for lavage purposes. The hexamine mixture should be continued, and the patient's urination and urine watched.

The patient can learn to induce automatic flushing by tickling the skin of his abdomen, or by deep breathing ("spreading reflex"). When automatic bladder has become completely established, the catheter and lavage are entirely given up, but the mixture is continued indefinitely.

If surgeons would adopt this method they would be surprised to find how simple it is compared with such methods as suprapubic cystotomy or intermittent catheterization.

SUMMARY AND CONCLUSIONS.

I have tried to show that the subject of the treatment of the paralysed bladder after gunshot injuries of the spinal cord is ripe for discussion and needs further consideration.

My own feeling is that the methods of intermittent catheterization and of suprapubic cystotomy are inadvisable, and should be discarded. I think that in the hands of a careful worker the third method of mechanical expression of the bladder is likely to be the best method if it can be proved by end-results that it does not diminish the chances of automatic action. This method is likely to ensure a more or less clean bladder, but will it ensure an automatic bladder?

I feel that until this question is settled the method of the "tied-in" catheter is on the whole the best and most "fool-proof" method, and is likely to lead to the highest percentage of recoveries. By recovery I mean the establishment of a clean automatic bladder. If we can obtain a clean automatic bladder we give the patient a chance of living until he may reach the period of possible recovery from his paraplegia.

This paper has been written in the hope that it will induce other workers to bring forward the results of their cases, so that a comparison of the different methods may be attempted in the future.

REFERENCES.

[1] Head and Riddoch, *Brain*, vol. xv, Parts I and II, 1918. [2] Frank Kidd, *Common Diseases of the Male Urethra*, 1917, pp. 39-40. [3] Thomson Walker, *Lancet*, February 3rd, 1917, pp. 173-179.

REMARKS ON CHEST WOUNDS.

FROM A PHYSICIAN'S NOTEBOOK.

BY

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THE following notes on gunshot wounds of the chest, which I have been asked to publish, were jotted down from time to time as the observations occurred. They represent experiences gained on the Western front at all stages, from the regimental aid post to the base hospital in England, mainly, however, at the casualty clearing station. If sometimes I may be adventuring opinions on matters surgical, I plead in extenuation that after working with Duval, Gask, J. Anderson, J. E. H. Roberts, and most particularly and intimately with Lockwood, my surgical colleague at No. 36 Casualty Clearing Station, I have seen thoracic surgery in the making.

The retreat of the Fifth Army (to which I was then consulting physician) in March, 1918, and the rapid advance of the Fourth Army from August 8th to November 11th, impressed upon me the results when military exigencies prevented the application of the surgical principles we had learnt previously. Duval's famous dictum, "the general rules of surgery must be applied to wounds of the lungs,"[1] came home at those times with additional force.

In the early stages of chest wounds the physician's first work is to help the surgeon to select cases which require, and are fit for, immediate operation or resuscitation. He has to decide at once with the surgeon and radiographer (1) whether the patient needs immediate operation. If so, why? (2) Can the patient stand immediate operation? If not, why not?

Indications for Immediate Operation.

These are by now pretty well agreed upon. Briefly, they are as follows:

1. Haemorrhage.
2. Injuries of the diaphragm.
3. Open pneumothorax (traumatopnoea).
4. "Stove-in" chest.
5. Retained missiles, bone, and clothing.
6. Early acute infection.

If one or more of these reasons for operation exist a prolonged physical examination of the chest is unnecessary and inadvisable, unless there is doubt whether the patient will stand an operation.

Cause of Unfitness for Operation.

The patient may be unfit for operation owing to

Intrathoracic injuries.
Severity of the external or complicating wounds.
Loss of blood.
Collapse or shock due to cold and transport.

It is the physician's province to decide as to the intrathoracic injuries, and he must form a definite opinion on the following points:

Is there a sufficient degree of

Pneumothorax,
Haemothorax,
Collapse of lung,
Laceration or haematoma of lung,
Injury of heart, pericardium, or great vessels,
Injury of diaphragm,
Injury of vertebrae or spinal cord,

to account for the severity of the symptoms? Radioscopy and radiography are almost indispensable in order to reach a correct conclusion on these points, but it will sometimes happen that a patient's condition will not permit of immediate *x*-ray examination. When this is so, the question is rendered easier rather than harder. The patient is unfit for any immediate operation save one of the following:

Immediate and rapid operation for the arrest of visible haemorrhage from the chest wall or thorax.
Arrest of haemorrhage from coexisting wounds.
Aspiration for relief of pneumothorax (usually valve pneumothorax).
Aspiration for relief of haemothorax.
Temporary closure of open pneumothorax.

Apart from one of these procedures, there remains nothing else to be done than to resort to measures for resuscitation of the patient.

As a rule, it will be found injudicious to aspirate immediately for pneumothorax or haemothorax. It is very rarely possible to decide at first sight that one or both of these conditions exists in sufficient degree to account for the severity of the symptoms. Occasionally it may be obvious from the urgency of the dyspnoea that relief by immediate aspiration is indicated.

More usually this becomes evident after resuscitation has been tried without success, or with only partial success. The patient recovers partially from his shock or collapse, and as he recovers, the dyspnoea, which is often absent while the respirations are very feeble and shallow, begins to show itself. Urgent dyspnoea with cyanosis seems more marked in cases of extensive collapse or deflation of the lung without much haemothorax or pneumothorax than in cases with these latter conditions unaccompanied by collapse of the (relatively) uninjured lung.

In order to decide whether a patient requires immediate operation the extent of the thoracic injury must be estimated. The mere presence of a thoracic wound is not sufficient evidence that the symptoms are due to thoracic injury. Broadly speaking, although a penetrating wound of the chest which produces collapse of one lung with or without haemothorax or pneumothorax will cause immediately grave shock to the patient, nevertheless recovery is fairly rapid provided the other lung remains undamaged. Experience at advanced dressing stations shows that although there is immediate and profound distress, such a patient will rally and become fairly comfortable within an hour or two if kept at rest. He will then bear the journey to the casualty clearing station, and should arrive there in good condition if the transport has not involved much jolting.

A patient with a simple through-and-through wound of the lung, or with a small missile retained, should not on arrival at the casualty clearing station be profoundly collapsed or in great respiratory distress. If he is, the following possible causes should be considered:

Haemorrhage.

This may have been very large in amount, and there may still be active bleeding. As a rule with closed thorax the amount of intrathoracic haemorrhage will not be enough to produce of itself severe shock. When there is an "open thorax" the estimated size of the haemothorax is no guide to the quantity of blood lost, as the greater part of the bleeding may have been external. In such a case physical examination is of little assistance beyond determining that there is an "open thorax" and that the patient is suffering from loss of blood. If the missile has been retained, it is of the greatest importance to localize it accurately by *x* rays. An operation is necessary to close the chest; the lung will have to be examined to discover, and if possible repair, the laceration, and to arrest the bleeding if it is continuing. It is essential to remove the missile, if accessible, to avoid infection.

Severe Parietal and External Injuries.

Comminuted fractures of ribs, scapula, or sternum produce the gravest symptoms even in the absence of severe intrathoracic injuries. It is of the utmost importance in such cases to determine the extent of the intrathoracic or pulmonary injury. Physical examination by auscultation and percussion is difficult to perform and more difficult to interpret. It will give little information beyond establishing the presence or absence of haemothorax or pneumothorax. But it is essential for the surgeon to know beforehand whether his operation should be limited to the parietes or should extend to the interior of the thorax. As a general rule, if the entrance wound is small, clean, and has not comminuted any bone, whilst the extensive bony injury is confined to the exit wound, there will be no in-driven fragments, and the operation may be limited to the parietes. But if the entrance wound is large, if there are in-driven fragments of bone, or pieces of clothing, and especially if there is a large missile retained, the operation must extend to the interior of the chest.

Associated Injuries.

Careful attention has always to be paid to injuries other than purely thoracic which may have been caused by the missile or missiles which have struck the chest, particularly injuries of the diaphragm and abdominal viscera.

A prompt decision must be arrived at as to whether there is sufficient thoracic injury to produce the symptoms, or whether the intrathoracic injury may be ignored and a further explanation looked for below the diaphragm.

To the surgeon a definite and reliable opinion expressed by the physician to the effect that the intrathoracic injury is negligible is of great assistance.

In order to form a definite opinion in such a case, physical examination of the chest becomes more important than in the class of case previously considered. If the heart is not displaced; if there is no great degree of surgical emphysema; if there is no large amount of air or fluid in the chest; but, above all, if there is a fair degree of air entry* into the lungs, it may be assumed that, although the missile has entered the chest, the grave lesion exists elsewhere.

In a through-and-through wound the track of the missile may be enough to furnish an explanation; failing this, *x* rays will be required, unless the presence of an abdominal injury is made clear by other signs and symptoms. Abdominal rigidity and immobility are not, by themselves, clear indications of abdominal injury; these signs are often present in pure chest injuries.

Increased dullness in the spleen area, haematuria, the presence of dullness in the flanks, localized tenderness and pain in the abdomen, the peculiar "catchy" breathing suggestive of diaphragmatic injury, and hiccough are signs which should be noted and interpreted as indicating injuries below the diaphragm.

Spinal Injuries.

These demand recognition, and not merely those which involve the spinal cord itself. Injuries to the body or processes of vertebrae may cause the gravest symptoms and present very puzzling features. Excessive pain, radiating very irregularly, is constantly met with in injuries of the vertebral bodies, and resembles the intense and erratic pain due to erosion of the vertebrae by aneurysm. Profound collapse which resists all efforts at resuscitation is often met with in spinal injuries, even when the cord is undamaged.

Multiple Wounds.

Apart from the associated injuries which the missile entering the chest may have produced, there may be other wounds which make it difficult to decide whether the patient's serious condition is attributable mainly to the chest wound or not. Here, again, if there is fair air entry into the lungs the intrathoracic injury may be put on one side. A patient with one lung expanding well should not be greatly distressed even though the other lung is completely out of action, provided some hours have elapsed to allow him to adjust himself to his new conditions, and provided he has been kept at rest.

Intrathoracic Injuries.

We may now pass to a consideration of the intrathoracic injuries pure and simple.

The distress caused by an open thorax is usually very great, and until the opening has been closed it is difficult to estimate the extent to which the symptoms are due to injury of the thoracic contents.

Auscultation and percussion will add little or nothing to the information obtained by seeing the hole in the chest wall.

Active haemorrhage may be visible externally and be recognizable by the colour of the blood, which continues bright and arterial. The leakage of a haemothorax which is not increasing from fresh haemorrhage is usually darker and resembles venous bleeding; moreover, the blood does not clot outside the body.

With closed thorax the examination of the chest resolves itself into a combination of the ordinary methods (inspection, palpation, percussion, and auscultation) with radioscopy and radiography.

Inspection.

The presence of surgical emphysema almost always means the presence of either partial or complete pneumo-

* It is surprising to find how little attention is paid to the amount of expansion or air entry into the lungs in examining gunshot wounds of the chest. Yet this is of vital importance to the patient.

thorax. If the heart's apex beat is visible, an alteration in its position may depend on the heart being pushed over by air or fluid, or on its being pulled over by collapsed lung.

Visible distension of one side of the chest may depend on air or fluid. An over-distended chest will generally be immobile. The degree of movement in a chest is not, however, always proportionate to the intrathoracic injury. On the one hand there may be, for instance, a considerable amplitude of respiratory movement with a large haemothorax if the lung remains partly expanded; and on the other hand, a chest which has been struck without material intrathoracic damage may remain immobile for two or three days, even though the lung is not collapsed, and even in the absence of haemothorax or pneumothorax. Cases of this kind are seen in which the injured side remains resonant, slightly retracted, without inspiratory or expiratory sounds, but with normal vocal fremitus and normal x-ray appearances.

In cases of collapsed lung (without haemothorax or pneumothorax) the side may appear greatly retracted, with indrawing of the interspaces on inspiration.

Palpation.

Surgical emphysema is the first sign to be felt for. If extensive, it obliterates or distorts every other physical sign except the position of the heart. Displacement of the heart may be determined by palpation.

Exocardial friction fremitus may be felt. It does not always indicate haemo-pneumopericardium or pericarditis. Substernal surgical emphysema may cause a similar friction fremitus.

Fractured ribs, or a missile lying under the skin, may be discovered by palpation. An ecchymosis on the chest wall should be carefully palpated, as it is often due to a missile which has penetrated as far as the skin without making its exit.

Tactile vocal fremitus is not always diminished and is occasionally increased over haemothorax. It is not even invariably lost over pneumothorax.

Percussion.

Percussion is apt to be misleading when the chest has been injured. The resonance of the normal chest depends to some extent on the tension of the chest wall, in the same way as the resonance of a drum depends on the tension of the drum-head. If the chest wall becomes abnormally laxer (as when ribs are extensively smashed) the resonance and the pitch of the percussion note are thereby altered. Surgical emphysema will yield a resonant note even over a large haemothorax. Resonance may be impaired over a collapsed lung even if there is no haemothorax. Alteration in the position of the mediastinum may be detected by percussing out the anterior limits of resonance of the uninjured lung.

The position or size of the cardiac dullness may be found changed.

The liver dullness or stomach resonance is sometimes found to rise unduly high in chest wounds owing to relaxation or paralysis of an apparently uninjured diaphragm. This may mean that the diaphragm is paralysed, or that the lung above it is collapsed.

Particular attention should be paid to percussion of the base of the opposite (and apparently uninjured) lung. Abnormal dullness of this base may be due to an abnormally high diaphragm, to consolidation, collapse, or compression of the lung or to a haemothorax. A missile may have passed through both lungs. The diaphragm may be pushed up by subphrenic injuries or by tympanites and cause abnormal dullness at the pulmonary base or bases.

Auscultation.

The positive sign of good air entry with normal vesicular breathing is the most valuable of auscultatory sounds. It is evidence that the lung in that area is expanding. Absent and altered breath sounds are less reliable. Breath sounds may be diminished or totally absent in haemothorax and pneumothorax; they may be equally absent in any case where the lung is not expanding—for example, when a bronchus is blocked, or when the respiratory movements are too feeble (as in shock) to produce any audible sound.

Altered breath sounds do not follow the same general rules in injuries as in disease of the lungs. Bronchial breathing is not uncommon over haemothorax, whilst it may be absent in haematoma of the lung if the haematoma is superficial and wide in extent. Bronchial or amphoric breathing is frequently heard over pneumothorax even when closed. The coin sound is sometimes absent even in large pneumothorax.

Mucous and Crepitant Rales.

It is very difficult to assign particular values to mucous rales and crepitations, in the same way as has hitherto been customary in disease. When it is remembered that, in the majority of cases where the lung has been struck, three changes almost invariably occur which are capable of producing mucous or crepitant rales, the difficulties of exactly interpreting these physical signs will be appreciated.

The three constant changes are: collapse of air vesicles, haemorrhage into the alveoli and bronchioles, haematoma of the lung. Whatever other accidents may have occurred these three may be confidently assumed to be present when a missile has struck the chest with sufficient force to penetrate its wall.

Mucous rales will give practically no information of diagnostic value.

Crepitations are occasionally useful, particularly in two conditions. In collapse of the lung (either homolateral or contralateral) widespread, coarse, dry crackling is a valuable physical sign. In compression of the opposite lung by a large haemothorax or pneumothorax on the injured side fine crepitations are often heard over the base of the compressed lung.

On the second or third day (and at any later time) the appearance of crepitations, where none were previously heard, may indicate the occurrence of pneumonia or bronchopneumonia, or that extremely rare condition gas gangrene of the pulmonary tissue.

Friction Sounds.

Pleural friction must be carefully watched for. It is often the first sign of intrathoracic infection. But a small haemothorax almost always at an early stage produces friction which is of no great moment. Pericardial friction is not uncommon, but pericarditis is not necessarily a fatal or even a serious complication of gunshot wounds of the chest.

A heart beating in surgical emphysema of the substernal tissues may give rise to a friction sound indistinguishable from pericarditis, or to a remarkable churning sound mistakable for haemo pneumopericardium. An adjacent pneumothorax will give to the normal heart sounds an exaggerated resonance or reverberation, and if friction is present either from pericarditis, or from surgical emphysema, or from haemo-pneumopericardium, the noises which may result are astonishing, although with experience they become unmistakable.

As a rule the exocardial friction sounds which appear immediately after wounding are due to surgical emphysema, and are very loud and coarse. True pericarditic friction usually comes on later and insidiously. It begins faintly over a limited area and spreads gradually with increasing loudness. Hernia of the stomach or intestines may cause gurgling sounds to be heard in the chest, but this sound is not diagnostic of a lacerated diaphragm. Intestinal gurgling is sometimes transmitted very distinctly through a pneumothorax with the diaphragm intact, and it is also heard when the diaphragm is raised abnormally high. It is very difficult to interpret correctly changes in the heart sounds and rhythm. Bruits which are mistaken for endocardial murmurs are produced by displacement of the mediastinum with dislocation or torsion of the heart and great vessels. Irregularities in rhythm may be similarly caused. Speaking generally, a heart which has been hit, with or without penetration, takes on a rapid and irregular action, especially if struck on the posterior aspect or near the auriculo-ventricular junction. I have, however, seen a case with a shrapnel ball lodged in the ventricular muscle near the apex, and another with a fistulous opening through the chest wall into the right auricle, yet in neither case was there any interference with the heart's action. But as a rule true delirium cordis indicates that the heart has been struck by the missile.

Succussion Splash.

It may be possible to elicit this sign in haemo-pneumothorax. It is never justifiable to attempt to do so in the early stages, and with *x* rays at hand it is never necessary.

Metallic tinkling: I do not remember that I have ever met with this sign in gunshot wounds of the chest.

Voice Sounds.

Modifications of vocal resonance are apt to be misleading. The most constant and reliable sign is aegophony, which I have not met with except when there was fluid in the chest. It is usually best heard at or near the upper level of the fluid, and may be localized to a very restricted area there.

Diminished vocal resonance does not always accompany even a large haemothorax; it may be considerably increased. Occasionally the vocal resonance is increased without any obvious intrathoracic change, even on *x*-ray examination. I do not know what is the explanation of this sign occurring in a chest which has been hit or penetrated. I have met with it frequently in the first few hours, and have not been able to attach any importance or diagnostic significance to it. Possibly it is due to a partial deflation of the lung insufficient to produce the physical signs of collapse.

In pneumothorax the voice sounds and the cough may acquire a characteristic metallic ring. This metallic ring is also sometimes heard with the inspiratory souffle in a closed pneumothorax, and indicates that a large opening communicates with the pneumothorax from the bronchus.

Auscultation is made very difficult when surgical emphysema is present. If the surgical emphysema is considerable and obvious, it will be recognized at once that auscultation can be of little assistance. Often, however, the emphysema is not evident, and the auscultatory sounds become very puzzling, particularly when the surgical emphysema is mediastinal, substernal, or subpleural, and does not extend to the subcutaneous tissues.

Under all circumstances auscultation should reveal the approximate position of the heart, and this is a point which requires determining in every case of gunshot wound of the chest.

X rays.

It is impossible to treat chest wounds adequately without *x* rays. From the time a case comes within reach of surgical assistance to the time he is finally discharged as cured, and even long after if untoward sequelae are suspected, *x* rays are constantly required. At the outset it is only with *x* rays that the probable track of a missile and its position, if retained, can be ascertained. The position of the heart and diaphragm, their movements, damage to the lung, collapse of the lung, haemothorax, and pneumothorax can only be accurately determined by *x* rays interpreted in conjunction with physical signs.

Radiography alone is insufficient; the cases must also be radioscopically examined and the parts be seen in movement with fluoroscopic screen, in a sitting-up position if possible.

It must be remembered that pieces of clothing can never, and fragments of bone only rarely, be seen with *x* rays.

General Considerations from the Physician's Standpoint.

The first consideration is to save life; the second is to restore function as completely and as quickly as possible.

All wounds of the parietes and thoracic contents should receive the surgical attention they require at the earliest possible moment.

Haemorrhage must be arrested and every possible step taken to early avert infection.

No fluid, whether blood, serum, or pus, must be allowed to collect in the chest. Early and frequent aspiration must be resorted to whether thoracotomy has been performed or not.

Any fluid in the chest is dangerous from two points of view: (*a*) It is a nidus for sepsis. (*b*) It interferes with the expansion, not only of the injured, but also of the uninjured lung, setting up conditions favourable to the development and spread of bronchitis, bronchopneumonia, and lobar pneumonia.

Foreign bodies, metal, clothing, and bone, should be removed whenever possible. They are dangerous, not only from the point of view of immediate sepsis, but from that of subsequent interstitial fibrosis.

Resection and open drainage as formerly practised for empyema is an unsatisfactory operation, and is shown by experience in this war to be rarely necessary if the early treatment, according to modern methods, is not neglected.

REFERENCE.

[1] Duval: *War Wounds of the Lung*, Preface.

RESUSCITATION WORK IN A CASUALTY CLEARING STATION.

BY

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THIS report deals with work amongst wounded men (stretcher cases only) received in a tented casualty clearing station during three weeks of activity on a sector of the Western front (September 27th to October 15th, 1918). Until October 4th there were eight surgical teams working, but subsequently only six.

TABLE I.

Period.	Admissions (wounded).	Operations.	Percentage.
Attack on the Canal du Nord: Eight days—Sept. 27 to Oct. 4, 1918...	1,713	479	28
Quiet period: Four days—Oct. 5 to Oct. 8, 1918 ...	275	71	26
Fighting on the Escaut Canal north of Cambrai: Seven days—Oct. 9 to Oct. 15, 1918...	835	353	42

TABLE II.—*Classification of Operations.*

	First Period.	Second Period.	Third Period.
Abdominal	31	1	9
Chest-abdomen	12	1	1
Chest	15	4	12
Fractured femur	23	2	15
Fractured femur with multiple wounds	6	4	3
Large flesh wounds	40	—	26
Knee-joints	33	3	13
Multiple wounds: Amputations, fractured tibia, humerus, forearm, etc.	314	56	274

It will be noticed that during the third period proportionately far fewer abdominal cases could be operated upon. This was largely due to the increase in distance of the unit from the front line during a time of rapid advance. Most of the cases arrived more than twenty hours after being wounded, and a large number died soon after admission from advanced peritonitis. The earlier abdominal cases, too, on the whole responded badly to resuscitation methods, and intravenous methods of treatment in such cases were not often successful, even if they were not obviously contraindicated.

A large number of cases of chest wounds, mostly with other complicating wounds, were admitted, and there were opportunities for keeping cases until better fitted for evacuation.

Total chest wounds	194
Aspirations	93
Operations on chests or chest wall ...	31

Of 21 deaths recorded in the chest wards one-half could clearly be ascribed mainly to causes other than the chest wound. In 33 cases the haemothorax fluid was proved bacteriologically to be infected, streptococcus being found in 79 per cent., anaërobe bacilli in 57 per cent., and staphylococcus in 50 per cent.

During this time a total of 450 cases were examined by x rays by Captain Campbell Haddow, of No. 6 Mobile X-ray Unit. Almost all of these were stretcher cases—89 were radiographed for multiple wounds, the abdomen was examined in 85, the chest in 92, buttocks in 46, and knees in 70 cases. Of the other cases, fractured femurs were numerous and a fair number of foreign bodies were localized in the limbs.

Before giving an account of the work in the resuscitation ward we would mention the value of gas and oxygen anaesthesia, given by means of a Boyle's apparatus which was at our disposal. For all types of badly shocked cases, and notably also in severe gas infections, it was a very great aid to successful operation and the maintenance of resuscitation.

Resuscitation Ward.

This was a long marquee connected by a covered way with the operating theatre. Well warmed by stoves, it had twenty-four beds and a small operating bay with two tables, well lit, for intravenous treatment. Cases admitted were not lifted from their stretchers unless they were damp or in discomfort; the moving of the patients was thus facilitated.

In this ward there were two sisters, one trained orderly, and two general duty men. During the first active period two M.O.'s—one for day and one for night—were available; subsequently one only could undertake the work. The successful management of such a ward is very greatly dependent on the skill and untiring patience and energy of the sisters and nursing orderlies, and in this instance nothing was lacking of these essentials.

We aimed at quick resuscitation, so as to avoid the onset of gas gangrene; no sharp clinical differentiation is possible between the condition of shock and the toxaemic condition common at the onset of gas gangrene, both being frequently accompanied by vomiting and lowered blood pressure.

The general lines of resuscitation treatment were followed; these are sufficiently well known to make a detailed account unnecessary here. Warmth applied by hot air, from a paraffin stove, ventilating over the patient into his blankets, and from hot-water bottles, was the first and most important element. To quench thirst by water, sweetened lemonade, and other mild drinks was an insistent need and a useful aid; it was necessary to prevent excess of drinking in a good many cases of shock and abdominal wounds, in which vomiting was persistent. Morphine judiciously given, heroin in chest cases, and camphor as a cardiac stimulant, were all utilized when desirable. So far as possible morphine was not given in doses larger than ¼ grain nor more than once in twelve hours—exceptions to this general rule seldom had to be made.

Intravenous injections were largely used in the worst cases. If there were obvious bleeding not controllable by mechanical means, it was thought better to avoid methods which increase blood pressure, otherwise gum infusion was given, unless the case seemed very urgent, when blood transfusion was preferred. Always as soon as possible operation was done. As a general rule, blood transfusion was reserved for the post-operative stage when all bleeding points had been secured.

An analysis of results sheds some further light on the comparative values of blood transfusion and gum infusion. Although this work was done under circumstances of stress and the treatment was controlled by simple clinical methods of observation only, we do not think a discussion of results is thereby invalidated.

TABLE III.—*Records of Intravenous Treatment and Totals for the General Work of the Ward.*

Total admissions	234	
Deaths within 48 hours = failures...	68	= 25 per cent.
Deaths in C.C.S. later	24	= 10 ,,
Total intravenous treatments	74	
Deaths within 48 hours = failures...	23	= 31 per cent.
Deaths in C.C.S. later	4	= 5 ,,

For practical purposes cases that died within forty-eight hours of admission have been regarded as failures from the resuscitation standpoint. This classification includes some deaths from gas gangrene and from abdominal wounds of such severity that no resuscitation methods could be expected to avert death. The later deaths have not been regarded as resuscitation failures.

TABLE IV.—*Pre-operative and Post-operative Treatments.*

	Total Intravenous Treatments.	Success.	Failure.
Pre-operative:			
Blood	18	12	6
Gum	17	9	8
Blood + gum	6	5	1
Post-operative:			
Blood	21	18	3
Gum	7	4	3
Blood + gum	5	3	2
Total:			
Blood	39	30	9
Gum	24	13	11
Blood + gum	11	8	3

Blood transfusion or gum infusion was given in seventy-four instances in all, and twenty-three (31 per cent.) of these were "failures" in the sense described. This group of cases included most of the severe wounds of the limbs, but fewer chest, abdominal, and cranial wounds, which usually were less suitable for intravenous injections, at any rate before operation.

Generally, those exhibiting shock only with lesser degrees of haemorrhage were given in the first instance gum infusion, blood transfusion being withheld unless gum showed insufficient benefit. To patients who, before operation, were in fair condition, but on whom a prolonged operation was expected to produce more shock, gum infusion was given with satisfactory results. In cases with evidence of severe haemorrhage, blood was given as early as possible, and we cannot emphasize too strongly the necessity for this measure being applied with no delay in such cases.

In this series, therefore, the giving of blood was restricted to a class of case in worse condition as compared with the "gummed" cases.

In a few post-operative cases in which gas gangrene tissue had been found a solution of sodium bicarbonate 2 per cent. and glucose 6 per cent. in distilled water was given with advantage. It was autoclaved at 105° C. in spring-stoppered bottles. The surgical measures taken, however, had certainly the major share in saving these patients.

After operation in abdominal cases, and in some major amputations, rectal infusions of sodium bicarbonate 5 per cent. and glucose 5 per cent. were used; the value of providing ample fluid in such cases was demonstrated convincingly.

Blood Transfusion Methods.

The donors were very light walking wounded cases, who volunteered with admirable spirit. There was always time to make the rapid macroscopic grouping test, and, whenever possible, a donor of the same group as the recipient was used. Failing that, a Group IV donor was taken.

Two transfusion methods were utilized: (1) The whole blood method using the Vincent tube, with paraffined surface; and (2) a very simple citrate method; the latter more commonly.

The Vincent tube was coated by means of a solution of paraffin in ether, as demonstrated by Major Alton. This method of transfusion when successfully performed is very rapid and satisfactory, the facility with which pressure can be applied to force the blood into the recipient's vein is not uncommonly advantageous. If any delay or mishap occurs, however, the blood drawn off may be wasted through clotting, and so an alternative simple citrate method was adopted by one of us (A. F. S.) and generally used; it gave quite satisfactory results.

Citrate Method.

The blood was drawn from the donor by a short curved glass cannula, or alternatively by a wide hollow needle, and the flow directed into a sterile graduated measure containing 5 per cent

citrate solution, in the proportion of 2 ounces for a pint of blood (1 : 10). This gives finally a citrate percentage of just under 0.5 per cent., which we found gives a safe but not excessive margin against clotting. It is essential to ensure adequate admixture of citrate with blood either by stirring or by agitation of the contents of the vessel. It was found convenient to stock this citrate solution ready autoclaved in 2 oz. (60 c.cm.) quantities, ready for use. If a hollow needle be used the internal diameter should be from 2 to 2.5 mm., and the length about 4 cm., and it is absolutely essential to have the needle very carefully and recently sharpened; an incision through the skin is an advantage before inserting the needle. Should there be any doubt about the sharpness of the needle, or if the donor's vein is not well swollen, time is saved by exposing the vein and inserting the glass cannula; it was not found necessary to line either cannula or needle with paraffin. Care is needed in adjusting pressure to donor's upper arm, sufficiently but not too strongly, so that a brisk stream of blood is ensured. This is readily accomplished by the use of a blood-pressure armlet adjusted to about 50 mm. pressure.

The citrated blood, kept warm at 40° C., was then run into recipient's vein by means of a simple funnel, tube, and glass cannula as used for saline infusions.

The apparatus required is quickly prepared for use, and the method is at least as free from pitfalls as any other we have tried.

It was found that donors felt little ill effect from the loss of a pint of blood, but that further withdrawal soon disturbed them. In view of the large number of donors utilized it was felt undesirable to take much beyond this quantity as a rule; in order to increase the blood pressure rather more, we adopted latterly the practice of adding to the pint of blood a pint of other fluid, preferably gum solution. This was done from motives of economy in donors solely, and would only be advised when the degree of blood loss was not extreme. In such cases two pints of blood would be indicated, and two donors of the same group might well be used.

In a few very severe cases a second blood transfusion was given later after operation with very beneficial effect.

From a review of this collection of cases it can only be deduced that blood transfusion has a distinct advantage over gum infusion. Analysis of both pre-operative and post-operative cases gives this impression, and previous independent experience of one of us (R. C.) with forty blood transfusions, and the other with a similar number of gum infusions, also favoured the former method. At the same time it is recognized that no two cases are alike in respect of their wounds, their powers of resistance, and the circumstances of exposure and infection.

There is certainly a class of case which derives sufficient benefit from gum infusion; on the other hand, some patients who when treated with gum infusion failed to improve showed great benefit from a subsequent blood transfusion. Our experience in such cases points to the necessity in these severer cases of haemorrhage for proceeding without delay to a blood transfusion. Some cases of pure shock without loss of much blood seem to derive no benefit, unfortunately, from either method.

In abdominal cases, where haemorrhage was the important factor, blood given after operation—or, if more urgently needed, during the operation—undoubtedly saved lives; formerly this type of case after operation failed to rally, and died. One of us (R. C.) had two such cases lately; after operation and before transfusion the pulse rate was 150 and pulse volume poor. In each case a litre of blood was transfused; twelve hours later the pulse was of good quality, ranging between 90 and 100, and each patient made an uneventful recovery.

We are quite opposed to the indiscriminate use of blood transfusion when other methods may be confidently expected to suffice, but we are convinced that there is a class of case in which blood transfusion is the only known treatment likely to succeed, and for such the use of donors and their blood appears amply justified both from the medical and the military standpoint; it is no light thing for the soldier to know that every resource, including blood transfusion, if necessary, will be invoked to bring about recovery of his wounds.

Reference to the table of the results of intravenous treatment shows a uniformly lower proportion of failure with blood than with gum, and if the severe abdominal cases and gas gangrene deaths be eliminated, this difference is only accentuated.

This analysis leads inevitably to the conclusion that blood transfusion had greater value than gum infusion, and the fact that in this series blood was given only to cases which appeared in worse condition tends to make the contrast stronger.

With either method there is usually an immediate response in the pulse rate and quality, but general improvement is by no means always obvious at once; it would be a mistake to judge the value of either treatment only by the immediate effect; the condition of the patient three, six, or twelve hours later is more important than his state five minutes after the fluid has entered his veins; and, judging by this later clinical condition also, the advantage of blood over gum has impressed us.

We have not seen in this series any ill effects ascribable to gum infusions, though these are spoken of by some surgeons; nevertheless, it is well to emphasize the great importance of running the gum in slowly—about fifteen minutes for 500 c.cm. is not too slow; if this precaution be not taken, vomiting, rigors, and athetotic movements are likely to occur. When slowly administered at the proper temperature (37° to 40° C.) the infusion has more often than not a distinctly sedative effect.

Resuscitation work has its depressing side—many cases are brought in obviously moribund—but its successful side renders it undoubtedly worth while.

If there be a shortage of surgical teams it is difficult to arrange for the adequate working of such a ward, for it is hardly practicable to remove a surgeon from the theatre, where he can operate upon, say, twelve cases in twelve hours, in order to spend his efforts on fifteen to twenty badly wounded men, of whom at most seven or eight can possibly be saved by present known methods. Further, if there are insufficient operating surgeons, operable cases will have to be sent to the base for operation, and these very cases may arrive there in condition as acute as those which needed resuscitation at the casualty clearing station, so that in present circumstances one cannot look to the skilled surgeon to do this work.

It is for the administrative authorities to consider whether the necessary medical officers for this work can be found elsewhere; their services can be very valuable in this field.

Conclusions.

1. Resuscitation methods such as have been developed during the war are of the utmost value in war surgery. It is evident that these methods will be equally applicable in the everyday surgery of accidental injuries and in obstetric work.

2. Gum infusion is an advance on the infusion of normal saline, and may enable a patient who has not lost blood excessively to be operated upon successfully. It is not evident that the benefit due to gum can extend over more than a few hours.

3. Where haemorrhage is severe, blood transfusion is the only reliable treatment, and should be given without delay. In such cases it is much superior to gum. In blood transfusion we found no important difference between whole blood and citrated blood.

4. Previous to transfusion a blood-grouping test ought to be done in every case. If possible, the donor should be of the same group as the recipient; failing that, recourse must be had to a Group IV donor.

5. We wish to emphasize the need for observing the strictest surgical aseptic technique towards donor and recipient. The donor must be free from known general infections, such as syphilis or malaria, in so far as can be ascertained by inquiry.

COLLOIDAL MANGANESE IN GONORRHOEAL OPHTHALMIA.

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IT will be generally conceded that the treatment of gonorrhoeal conjunctivitis in its severer forms brings but little satisfaction to the ophthalmic surgeon; and any remedy which promises to control the disease more effectively is worthy of prolonged test. I have recently used colloidal manganese in three cases of gonorrhoeal ophthalmia, and all have made excellent progress; the last case, which is reported here, being especially note-

worthy, both on account of its severity and the splendid result obtained.

During the past three and a half years I have had under my care in this hospital many cases in adults. The local treatment adopted varied from time to time. A group of cases was treated by gonococcal vaccine in addition to local measures, but whether vaccine were given or not, there seemed to be little difference in the results taken as a whole. Gradually, however, I became convinced of the uselessness of silver nitrate in combating the disease, and discarded it in the more severe types with much swelling, for in these it invariably appeared to aggravate the condition.

In gonorrhoeal ophthalmia the most dangerous period is during the first few days of the infection, when, owing to the swelling of the eyelids and bulging chemotic ocular conjunctiva, the cornea is obscured over the whole or most of its area, and the removal of discharge from its surface is made difficult or impossible. The continued bathing of the cornea in this discharge introduces the most serious factor, for the corneal epithelium is damaged principally by the action of the gonococcus or its toxins, while the nutrition of the cornea as a whole is also injuriously affected to some extent by the excessive swelling.

It seems certain that the main effort of treatment in this stage should be directed towards controlling and abating the violent reaction to the gonorrhoeal infection, by bringing about a rapid decrease in the conjunctival swelling, and so allowing of thorough yet gentle cleansing of the whole eye by non-irritating collyria. The use of any drug which by its action would tend to increase the swelling is contra-indicated.

Colloidal manganese appears to act in the manner required. It was recommended and given by Captain J. E. R. McDonagh in my last three cases with favourable results. The first case was not of great severity, but the action of the drug appeared satisfactory. In the second case it was not given till corneal ulceration had set in, but the eye healed rapidly, and swelling and discharge abated during its use. The third case was of a most virulent type, and the effect of colloidal manganese, given for the first time from the beginning, was most striking.

Pte. J., aged 24, admitted December 24th, 1918, with gonorrhoeal ophthalmia of the left eye. Two days previously he felt his eye pricking, and the following morning—the day before admission—the eyelids were swollen and difficult to open. On admission both lids were greatly swollen and almost solid, so that they could only with difficulty be separated. There was great tenderness and pain, and the surrounding cheek was also red and swollen. On opening the lids the cornea was found to be completely hidden by overlapping folds of oedematous bulbar conjunctiva. There was an abundant discharge of thin pus. The eye was bathed with warm boric lotion every hour by day, and every two hours by night, and 10 per cent. argyrol was used every six hours. An injection of 1 c.cm. colloidal manganese was immediately given by Captain McDonagh intramuscularly into the buttock. On December 25th there was a slight improvement, and a little part of the cornea could be seen. The lids were more easily parted. On December 26th he still had slight pain; on December 27th he was given colloidal manganese 1 c.cm. as before, and by the following morning he expressed his delight in the almost complete absence of pain. The change was striking: all swelling of the bulbar conjunctiva had completely vanished; the oedema of the eyelids had greatly lessened, and the discharge also had become noticeably less in volume. The cornea was perfectly clear, with its epithelium intact over the entire surface, and the eye was apparently out of danger. On December 31st a third and last injection of colloidal manganese 1 c.cm. was given, and by January 9th the conjunctiva had become almost normal, and discharge had practically ceased, except for gumming of the eyelids after sleep.

The appearance presented by this case on the day following the second injection of colloidal manganese was in truth surprising. In a fairly wide and long experience in the treatment of gonorrhoeal blenorrhoea it had never previously been my good fortune to witness such a dramatic change. No local measures with which I am acquainted would have brought about such a satisfactory termination.

It is hardly necessary to emphasize the danger of drawing inferences from results obtained from any remedy in a small number of cases. Prolonged use of the drug is necessary before definite conclusions which will stand the test of time can be reached. Nevertheless it is well to avoid cultivating the habit of mind which sees the perfection of achievement in everyday methods already in use, and refuses to recognize their defects. Where treatment is too often followed by indifferent results, as in gonorrhoeal ophthalmia, the need for fresh endeavour becomes insistent. In future we shall use colloidal manganese in the hope that it represents a decided advance over former methods of treatment; in any event we seem to have acquired a valuable therapeutic ally and one worthy of extensive trial.

I have to express my indebtedness to Captain McDonagh for his valuable assistance in the treatment of these cases; and to Lieut.-Colonel W. Turner, C.M.G., O.C. Connaught Hospital, for permission to publish these notes.

METHYLENE BLUE IN PURULENT DISCHARGE FROM THE EYE SOCKET.

BY

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INJURIES to the eye have been of very frequent occurrence in the war, and enucleation has had to be performed in a large number of cases. After an artificial eye has been supplied, the soldier has in many instances suffered from purulent discharge of the conjunctiva in the socket, particularly if the artificial eye has been worn for a long time, or has become rough and irritating for any reason. These sockets have proved themselves very difficult to treat; the ordinary methods of treatment, such as zinc sulphate, alum, or the silver preparations have been found most unsatisfactory.

Adams,[1] in his monograph on the use of methylene blue in eye work, shows that the drug is of value in cases of conjunctival discharge due to the *Staphylococcus aureus*, the more usual lines of treatment having failed.

In the ophthalmic department of this hospital methylene blue (1 in 1,000 saline solution) has been employed as the regular routine method of treatment in cases of discharging eye socket, and the results obtained have been so striking and satisfactory that we were led to inquire how the drug exercised its effect—whether there was a definite germicidal action, and if so, whether there was a selective action for one micro-organism more than another. The present investigation was undertaken at the suggestion of Major Maitland Ramsay, the clinical results having been observed by him in these wards over a lengthened period.

For the bacteriological investigation, carried out in the pathological department of the hospital, nine cases of purulent discharge from the eye socket were taken. They were not selected—save that they were illustrative cases in which actual discharge was present. Some had been under treatment with methylene blue for a time, but in none had the discharge completely stopped. Treatment was suspended in every case for twenty-four hours or so in order that the discharge might be as abundant as possible without prejudicing the welfare of the patient. A feature of the treatment by methylene blue is that although the discharge vanishes after the drug has been in use for a comparatively short time, it is necessary to continue the treatment for a further period (say a fortnight) after the discharge ceases to be obvious to the naked eye, in order to prevent recrudescence.

In each case to be investigated direct microscopic films were made, and agar slopes inoculated; the first step in the research was to find the prevailing organism in the conjunctival discharge. Agar medium was employed for culture throughout, and the results must necessarily be expressed on limited lines. The possibility of demonstrating the presence of micro-organisms which flourish on different media is allowed for, but the finer points of research into the germicidal valency of chemical substances belongs to the expert bacteriologist.

The direct films made from the socket on microscopic examination were practically all negative, as is often the case in films of conjunctival discharge. The agar slopes were incubated for twenty-four hours. Well-marked growth was found in the case of two cultures only, and these were selected for further experiment. In all cases in which any growth appeared the prevailing organism was found to be *Staphylococcus aureus*.

In each of the two cultures selected for further investigation a subculture on agar was made in order to procure

an active growth in the pure form. As the subsequent procedure was the same for both, details will be given for one experiment alone.

Experiment.

1. The subculture of *Staphylococcus aureus* was taken at the end of twenty-four hours' incubation, a good growth being present.
2. A bacterial emulsion was made by rubbing down the organisms (adhering to the end of a platinum loop which had been introduced into one of the larger colonies) in 1.5 c.cm. sterile saline solution contained in a sterile test tube. The turbidity of this emulsion was barely visible to the naked eye, and it was calculated that the micro-organisms were present in considerable dilution.
3. Three sterile test tubes were taken, and into each was placed 0.5 c.cm. methylene blue, obtained from the stock solution in daily use in the wards.
4. To each tube containing the drug 0.03 c.cm. of the bacterial emulsion was added, the resultant mixture being well shaken to bring the organisms into intimate association with the methylene blue.
5. At the end of half an hour, six hours, and twenty-four hours respectively, these solutions (which had been shaken frequently) were taken, and agar slopes inoculated by making successive strokes with a platinum loop which had been introduced into the emulsion-methylene blue mixture.
6. The agar slopes were examined at the end of twenty-four hours, and forty-eight hours.

Results.—The half-hour and six-hour exposures on agar yielded practically the same result, namely, a diffuse growth of *Staphylococcus aureus* at the end of twenty-four hours' incubation. The twenty-four hour exposure showed no growth visible to the naked eye at the end of twenty-four hours' incubation. At the end of forty-eight hours' incubation, however, a few well developed colonies of *Staphylococcus aureus* were easily seen by the naked eye.

The experiments were repeated several times, and gave the same results.

Summary.

1. The prevailing micro-organism obtained by agar culture from nine cases of purulent discharge of the eye socket was found to be *Staphylococcus aureus*.
2. Methylene blue, although proved to be very active clinically in cases of discharging eye socket, was found to have comparatively little bactericidal action upon *Staphylococcus aureus* obtained from the discharge—0.03 c.cm. of a very dilute emulsion of the micro-organism, after even twenty-four hours' exposure to the drug, still giving a number of colonies of growth after incubation.

REFERENCE.

[1] P. H. Adams, D.O.: On the Use of Methylene Blue in Eye Work, *The Ophthalmoscope*, vol. xiv, No. 2, February, 1916, p. 78.

PRELIMINARY NOTE ON THE RESPONSE TO CALCIUM SHOWN IN MANIACAL STATES.

BY

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ACTING on deductions drawn from physiological observations I resolved to test the effect of the exhibition of calcium in persons suffering from various degrees of excitement. For this purpose I chose the lactate as the most suitable salt in order to have the action of the calcium ion unimpaired by other elements. Moreover, as the lactate is easily soluble in hot water and remains in solution when cold, a convenient means of administering the drug is available.

I do not propose in this communication to discuss the mode of action of the element in these cases; this and other cognate matters will be dealt with fully in another communication. I wish to report merely the effects observed not only in the mental state but also in the circulatory system.

The action of the drug became evident at least during the twenty-four hours following its exhibition. The acute mental symptoms were alleviated without the production of the stupor so commonly observed resultant from the action of the "sedative" drugs—if, indeed, they produce any effect at all in many cases. The circulatory response has been equally interesting. Instead of the rapid, at times almost uncountable, pulse with its flaccid artery and variable but always low systolic pressure, the pulse becomes slower, the artery normally constricted and the pulse wave stronger, indicative of an improved action of the ventricular myocardium.

The action of the drug has been equally satisfactory in the distressing restlessness and excitement of agitated melancholia and confusional states as with the simple mania. Those cases in which influenza has been assigned as the principal cause have reacted well to the drug. These cases had resisted ordinary sedative treatment, but with this definite addition of calcium to the diet—for that is what the treatment amounts to—a vicious circle seems to have been completely broken, and they are making good progress towards recovery.

Many of the other cases in whom, owing to the duration of the character of the mental disorder, complete recovery can hardly be expected, have nevertheless shown amelioration of the more acute symptoms, which may well be a determining factor in leading to an improvement of variable degree.

So far I have contented myself with giving 10 grains three times a day with food, and when a response has been obtained dropping the dosage to 5 grains. In one particularly distressing case of agitated melancholia in addition to the doses by day one or two doses have been given at night. It was interesting to note that in one case of mania with diarrhoea not only was the restlessness and excitement allayed, but the number of stools passed fell from six to one.

So far no untoward effects of any kind have been observed, and, considering the small doses employed, these can hardly be expected if careful observations on the pulse are made.

The Lumleian Lectures ON CEREBRO-SPINAL FEVER.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

BY

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LECTURE I.

(Abstract.)

IN his first lecture Sir Humphry Rolleston dealt with the history and etiology of cerebro-spinal fever. Examining the history from 1805 he distinguished five periods, the fifth beginning in 1903. New York suffered severely in 1904–5, Silesia in 1905–7, and France in 1909–10. In Great Britain outbreaks occurred in 1907 in Belfast, Glasgow, and Edinburgh. Compulsory notification was permanently established in 1912, and the cases and deaths subsequently were as follows:

Civil Population.

Years.	Cases.	Deaths.	Case Mortality (per Cent.)
1912	272	142	52.2
1913	304	163	53.6
1914	300	206	68.6
1915	2,343	1,521	64.9
1916	1,278	833	65.6
1917	1,385	906	65.4

There was therefore no question that the disease increased in this country after the outbreak of war. The belief that there had been a change of type of the disease was supported by Dopter's observation that in France the type of infecting organism underwent a change during the war. Netter correlated the greater frequency of septicaemic cases and lesions such as rashes, arthritis, iridocyclitis, with this alteration of the infection from Type A (Gordon's Types I and III) to Type B (Gordon's II and IV). The observations of Kennedy and Worster-Drought suggested that Types I and III (Nicolle Type A) were more virulent as regards the meninges and Types II and IV (Nicolle Type B) specially prone to cause septicaemia and

extra-meningeal metastases. But in a recent small outbreak of 10 cases due to Type II under the lecturer's own observation, the meningitic manifestations were very severe. Adshead analysed 49 cases in which Gordon's types of meningococci had been determined, but did not feel justified in drawing any definite conclusions.

The periods between epidemics were bridged over by sporadic cases; at or before the commencement of epidemic outbreaks these sporadic cases became more frequent. The special advisory committee upon bacteriological studies of cerebro spinal fever during the epidemic of 1915, adopting Dopter and Arkwright's view, concluded that the epidemic was not one of cerebro-spinal fever as such, but what might be termed a "saprophytic epidemic" of the meningococcus in the throats of the population, cerebro-spinal fever being an epiphenomenon of this epidemic, due to a secondary systemic invasion from its saprophytic focus in the nasopharynx, occurring in spare and isolated instances which, as a rule, appear to be unconnected with each other.

Epidemiology.

As the vast majority of the cases in Great Britain occurred during the first six months of the year it might be suspected that meteorological conditions exerted a definite influence on the incidence of the disease. Sudden alterations in the atmospheric temperature had been emphasized by Sophian and Dopter as responsible for the outbreak of cases, and the lecturer had received the same impression at the Royal Naval Hospital, Haslar, in 1914–17, but investigation of the 93 cases occurring at large naval dépôts during the first three months of 1915 did not justify any positive conclusion.

Compton's views on the meteorological conditions were quoted fully, the conditions favouring pneumonia outbreaks, as described by Herringham, mentioned, and a comparison of the curves of pneumonia and of cerebro-spinal fever made. Unless it could be convincingly proved that the outbreaks of cerebro-spinal fever were closely and accurately correlated with changes in the meteorological conditions—and that it was not so appeared clear from consideration of various views—it became more probable that the conditions prevalent during the months of greatest incidence acted by increasing the carrier rate or the power of carriers to spread infection—namely, by coughing—or by both means, and so exposing a larger number of possibly susceptible persons to the opportunity of systemic infection. The conditions favouring a high carrier rate were (*a*) prevalence of colds and coughs, which enabled existing carriers to infect others; (*b*) close contact of individuals such as occurred in cold weather. The observations of Dr. J. A. Glover (published in the JOURNAL of November 9th, 1918, p. 509) showing the influence of overcrowding in increasing the carrier rate were quoted. In discussing the question of the relation of the disease to campaigns it was pointed out that there was little information as to increased prevalence of the disease during previous wars. In the French troops in this war the disease became less frequent—the rate in 1915 being 4.3 per 10,000; in 1916 it was 1.8 per 10,000, and in 1917 1.5 per 10,000. For the army in this country the figures were as follows:

Army at Home.

Year.	Cases.	Deaths.	Case Mortality (per Cent.)
1914*	50	31	60
1915	1,195	586	49
1916	967	430	44.6
1917	1,337	593	44.3

* From September 19th to December 31st, 1914.

In the British Expeditionary Force in France the disease began to appear widely in a scattered fashion in January, 1915, at the same time as in troops in this country. The outbreak in 1915, when the available serums were useless, was the worst in France; the mortality was then about 50 per cent., and during the war probably never fell below 35 per cent. The disease first became prominent among the military population in this country, and the civil population then followed suit; the increase in the incidence of the civil cases during the war was striking; in 1915 the number of civil cases was eight times that of 1914, and in 1916 and 1917 four times that of 1914 (Reece). Evidence with regard to the relation of colds and catarrhal affections to cerebro-spinal fever was conflicting. The special Advisory Committee of the Medical Research Committee on the bacteriological studies of the epidemic in 1915 considered that the relation with catarrhs and the disease was fortuitous, as both had a similar seasonal prevalence, the relation being the same as that between catarrh and the prices of coal. On the other hand, the view that catarrhal throat affections, by inducing coughing and sneezing, spread meningococcic infection and so increased the carrier rate and the chances of systemic infection, as urged by Pringle, seemed highly probable. The prevalence of colds in the population would thus favour the outbreak of cerebro-spinal fever, but it was not necessary that cerebro-spinal fever patients should have had colds or naso-pharyngitis.

The evidence as to the depressing effect of recent acute affections, such as influenza, mumps, and measles, in disposing persons to meningococcic infections was also conflicting. The most susceptible age was from birth to 5 years, and in some epidemics 80 to 90 per cent. of the patients had been under 15 years of age; in the Dantzic epidemic of 1865, for example, 93 per cent. were under this age. It was generally estimated that half the total cases occurred in the first five years of life; in England and Wales, during 1914, 51.4 per cent. of the cases were in children under the age of 5 years, and 72.4 per cent. under 10. But in 1915 and 1916 these percentages (30 and 48.8, and 38.7 and 54.8 respectively) were much lower, although the military cases are not included (Reece). Compton, who connected the greater fragility and delicacy of the nasopharyngeal mucosa in children with their susceptibility to infection, stated that the least susceptible age is between 35 and 40 years. Statistics favoured the opinion that the disease occurred more often in males, especially in young males.

Mode of Spread of Infection.

The actual spread of infection was mainly due to droplets expelled from the nasopharynx in coughing, sneezing, and violent expiratory efforts, so that the carrier's power for harm depended on the existence of cough, etc., on the number of meningococci, and also largely on their being of an epidemic type. Infection might also be conveyed directly from mouth to mouth, as in kissing. The question of the importance of prostitutes as meningococcic carriers required investigation. Other methods of spread of infection were less important or very doubtful. Adami had recently spoken of the spread of infection through drinking vessels, partially or imperfectly rinsed, in crowded canteens and refreshment booths.

When a carrier lived in close contact with healthy individuals the carrier state was prone, especially under conditions of overcrowding, to be conveyed to others, and these new carriers acted in like manner. Among the individuals thus exposed some might, from diminished resistance, become systemically infected, and, as Glover had shown, this should be expected when the carrier rate, normally under 5 per cent., rises to the danger line of 20 per cent.

Path of Meningeal Invasion.

Three paths by which the meningococci reached the meninges were discussed: 1. Direct invasion through the nasopharynx and accessory sinuses through (*a*) the sphenoidal sinuses; (*b*) the cribriform plate of the ethmoid; and (*c*) through the Eustachian tube to the middle ear and so to the brain. 2. Lymphogenous infection along the spinal nerve roots in the cervical, thoracic, and abdominal regions. 3. Infection from the blood stream. The conclusion drawn was that while the haemic infection of the meninges appeared to be applicable to the majority of the cases, the possibility that in certain instances infection might pass by other routes, such as through the cribriform plate of the ethmoid or the sphenoid, could not be entirely excluded. In connexion with the path of infection of the meninges the question arose where the meningitis began—whether it started in the choroid plexuses of the lateral ventricles (as seemed to be the general view), in the spinal meninges, or in both situations simultaneously.

Meningococcic Septicaemia.

Sir **Humphry** Rolleston concluded his lecture by discussing meningococcic septicaemia, which, he said, might present several variations from the short initial invasion of the blood by meningococci, which probably preceded infection of the meninges in most, if not all, of the cases of meningococcic meningitis. He continued as follows:

Possibly cases of true meningococcic septicaemia are only more commonly recognized now than formerly, but Netter has suggested that Dopter's observation that whereas before the war 96 per cent. of the cases of meningococcic meningitis were infected with the meningococcic Type A (Gordon's I and III types), a change has taken place, so that now the parameningococcus, or Type B (Gordon's II and III), is responsible for an equal, if not a larger, number of the cases, may be correlated with an increased incidence of meningococcaemia and meningococcic manifestations in the skin, joints, and eyes. Brulé also considers that parameningococcaemia (due to Type B) is more frequent and more severe than meningococcaemia (due to Type A).

Meningococcaemia appears to have been first established by Gwyn in 1899 in a case of meningitis with arthritis. Salomon in 1902 detected meningococci in the blood eight weeks before meningitis supervened; in the following year Warfield and Walker described the first case of meningococcic endocarditis with septicaemia; a fulminating case of meningococcaemia also without meningitis was recorded by Andrewes in 1906, and in reviewing the cases two years later Duval summed up in favour of the septicaemia being secondary to the meningitis, the reverse of the present opinion. Lüdke described a case of meningococcic septicaemia in which in addition streptococci were obtained by blood culture.

Portret distinguished four kinds of meningococcaemia: (i) Without meningitis, (i) preceding meningitis, (iii) with metastases, (iv) without metastases. The following forms of meningococcic septicaemia may be described:

1. In a certain number of cases a fulminating meningococcaemia proves fatal before meningitis has had time to occur, and lumbar puncture, if performed, gives exit to clear fluid without any meningococci or increased cell content. At the necropsy meningococci can perhaps be obtained from the fluid in the ventricles of the brain, but there is no exudation. The clinical features of these cases are severe toxaemia, often at the onset, with a low temperature, followed by fever and perhaps hyperpyrexia, rapid pulse and respirations, and extensive haemorrhages into the skin, mucous and serous membranes, and adrenals. The clinical picture may suggest the "acute abdomen," such as internal strangulation, intussusception (Pybus), or Henoch's fulminating purpura, haemorrhagic fevers.

2. Abortive cases in which a blood infection is overcome after a short time by natural immunity, though commonly assumed to be frequent, are difficult to prove. Cases of febrile meningococcic purpura without meningeal symptoms, or presenting meningeal irritation which, as shown by lumbar puncture, is not due to meningitis, and may therefore be explained as meningism, come under this heading. Sainton and Maille's case with a measly eruption, synovitis of two joints containing meningococci, and a positive blood culture but no meningitic symptoms, the whole illness lasting about a week, belongs to this group of abortive cases. In order to determine the incidence of these abortive cases during an epidemic Maxcy selected 27 cases with fever, headache, and malaise, but without petechiae, and made blood cultures which were uniformly negative. Doubt is thus thrown on the assumption of their frequency, but further investigations of this character are desirable.

3. Intermittent meningococcic fever due to septicaemia may (*a*) last for weeks without any meningitic symptoms ever developing. In Liebermeister's case the disease lasted four months and in Bray's case, complicated by chronic pulmonary tuberculosis, there was fever for five months and recognized meningococcaemia for three months. Though striking, they have not been very often recognized. Netter had five examples among his 368 cases, and Brette collected 22 cases in 1918. The attacks of fever may be quotidian or tertian and in the intervals the patient may feel well. The disease may resemble malaria, quotidian or tertian, or enteric fever—Netter's pseudo-malarial and pseudo-typhoid forms. The attacks of fever may begin with a rigor and end with sweating, be accompanied by splenic enlargement; joint pains and orchitis may occur, and rashes, such as polymorphic erythema or erythema nodosum, herpes or papules, especially on the lower extremities or around the joints, or petechiae may be present. But the disease may run its course without any cutaneous manifestations (Zeissler and Reidel, Worster-Drought and Kennedy). In exceptional instances malignant endocarditis is due to infection with the meningococcus (Warfield and Walker, Cecil and Soper, Worster-Drought and Kennedy).

(*b*) In another group septicaemia follows the subsidence of meningococcic meningitis. Brulé records a case with septicaemia of two months' duration with purpura and positive blood cultures on five occasions. Lancelin's patient had meningococcic meningitis, and after an afebrile period of four days had fever imitating malaria for seven days and then yielded to serum; meningococci were not obtained from the blood, but the presence of purpura rendered septicaemia highly probable. Among 126 cases Landry and Hamley detected two cases of post-meningitic septicaemia.

(*c*) During the course of intermittent meningococcic fever there may be transient meningitic symptoms; thus, Maxcy describes a case with transient rigidity of the neck, which appeared a week after the onset and rapidly passed off.

(*d*) In an allied group of cases the septicaemia is prolonged, but is eventually followed by meningeal infection; in Ainé and Chéné's case the pseudo-malarial stage with splenic enlargement lasted for four weeks before the onset of meningitis; and in Serr and Brette's two cases lumbar puncture was first performed after four and two months' fever, and cures rapidly followed the intravenous injection of serum.

A correct diagnosis is seldom made in the absence of meningitic symptoms. Blood cultures should be taken during the febrile paroxysm.

The Milroy Lectures

ON

HALF A CENTURY OF SMALL-POX AND VACCINATION.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

BY

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CONTROL OF SMALL-POX IN THE PRESENT DAY (*continued*).

VII. LOCAL CO-OPERATION AND CENTRAL CO-ORDINATION.

A DUTY that should not be neglected is to notify local authorities in the neighbourhood, especially if any contacts are supposed to have travelled into their area. The date of exposure to infection of such contacts should always be stated to the medical officer so as to guide his action. If in any case there has been an exodus of navvies from constructional works or of vagrants from a lodging-house, the police of surrounding areas, as well as the medical officers of health, should be informed and a search instituted for contacts. Often the name of the navvy in such circumstances is of no avail. Some of them for various reasons seem to use a new name for every new job.

Dr. Boobbyer of Nottingham adopted a very systematic scheme of notification to various parties within his own area who might utilize information sent to them. The name and address of every fresh patient was furnished daily to general and special hospitals, to the post-office surgeon, the Charity Organization Society, the guardians, the Education Committee, the city librarian, the health visitor, the owners or rent collectors of infected houses, the vaccination officer and public vaccinator, and various municipal officers.

Under orders by the Local Government Boards of England and Scotland every small-pox case individually is to be reported as it occurs. The army, navy, and air force authorities are notified at once if concerned, an inspector is usually sent, and necessary inquiries are carried back to other districts or other countries. Small-pox abroad is followed to the extent that information

allows, and port medical officers are told of any known special risk. Last year at Newcastle a shipload of refugees from Murmansk in Russia was medically examined, and four or five cases of ambulant small-pox were found which would otherwise have got to destinations within the country. The resumed traffic with the North Sea and Baltic ports is being closely watched.

These, then, are the essentials of the modern method of small-pox control: (1) A large supply of glycerinated calf lymph constantly available, capable of immediate increase, and freely used for all who will take advantage of it; (2) compulsory notification; (3) a sufficient public health staff; (4) search for, vaccination of, and surveillance of contacts; (5) isolation; (6) disinfection; and (7) local and central administrative co-operation and co-ordination.

Excepting for two features, these preventive measures, as such, are not new. They are not even modern. In a review of the public health administration of Glasgow[5] the late Dr. Hugh A. McLean showed that so early as 1648 the precautions set forth for the prevention of plague were, when translated into modern speech, briefly as follows:

"1. Compulsory notification.

"2. House-to-house visitation; districts mapped out and certain quartermasters or sanitary inspectors appointed to each.

"3. Compulsory removal, rich and poor alike, to the isolation camp on the Town's Moor, with corollary of treatment and upkeep at the town's expense.

"4. Appointment of a superintendent to manage the camp with visitation by a councillor twice or thrice weekly.

"5. Cleaning of infected houses and clothes and removal in special closed carts of infected filth."

The two new items in the modern scheme of prevention as applied to small-pox are (1) vaccination, or immunizing of the individual, and (2) observation of contacts, based on present day knowledge of incubation periods during which infectious disease can be dealt with before the stage of infection is reached. These embrace the essential advances in principle which have been made within the past three hundred years. The rest is improvement in practice.

A Navvies' Small-pox Outbreak.—In illustration of the experiences and problems—difficult, but stimulating and interesting—which small-pox may bring to the health administration of a rural area unprovided with the preventive equipment of a town, I may give a brief account of an outbreak amongst navvies in the winter of 1892–93. A new railway—the West Highland—was being constructed in Dunbartonshire, along the shores of the Gareloch, Loch Long, and Loch Lomond, and hundreds of navvies were employed at a time when small-pox prevailed extensively in the industrial parts of Scotland. On December 26th, 1892, a message came to me from the Glasgow Health Office that a tramp suffering from small-pox had been found in a lodging-house, and that he had just come from Ardlui, a small scattered hamlet at the head of Loch Lomond, where he had been staying for several days. I wired to the nearest doctor on Loch Lomondside—at Tarbet, about ten miles away—to visit immediately, and set about collecting vaccine lymph preparatory to visiting on the following morning. There was a steamer service on the Loch only three days a week.

The tramp had stayed for several days in a navvies' hut used as a lodging-house. There were 19 inmates and the incubation period had not quite elapsed. Note was taken of the vaccinal condition of the 19, and I arranged that the Tarbet doctor, who was also doctor to the railway constructional works, would visit daily and watch for appearance of the disease. The railway contractors were asked, and agreed, to refrain from dismissing any of the navvies in the hut, and to employ them in a gang by themselves. Two, however, had already gone away, and were searched for by means of the police in half a dozen adjoining counties and burghs. Both were found. One had previously had small-pox, and neither developed the disease.

Meantime the hut was disinfected and the infected bedding burned, but the problem which troubled me most was what to do with any small-pox which might develop. The nearest available hospital was at Knightswood, close to Glasgow, and forty miles by road from Ardlui. Conveyance of small-pox cases by the steamer service was not to be thought of, and the onset of a heavy snowstorm answered in the negative the question whether Knightswood Hospital could be approached by road. I resolved therefore—and there was no time for deliberation—to start a hospital and observation house on Loch Lomondside. The navvies' lodging-house was secured for the former purpose, and another hut not far away was obtained as a reception house, the ordinary navvy inmates being sent elsewhere. Staffing and equipment were the next problem, though all questions were really being tackled at the same time, with the help of Mr. Dunbar, the county sanitary inspector, who gave invaluable assistance. The observation hut was put in charge of a navvy who had been in the army, and maintained discipline. No nurses could be obtained in Glasgow, but the ex-matron of a small local hospital was found in the Vale of Leven, at the south end of Loch Lomond, and undertook the job with such help as was obtainable. A retired sanitary inspector, not in his first youth, was also enlisted in the service, and, under the name of "Sanitas," which somehow was at once given to him in the locality, he did excellent work, though on one occasion his supervision of the funeral of a patient who had succumbed to small-pox had results which would have required some explanation had an intelligent press got hold of the facts. It required the aid of three men and three bottles of whisky to accomplish the obsequies of that navvy. One of the mourners was so overcome that he fell into the grave on the top of the coffin, and subsequently conveyed small-pox to a neighbour who had no other kind of contact with the outbreak. Such a funeral introduced what is now called "a certain liveliness" into the proceedings, and some restraint had to be put on local enthusiasm. The thrice-a-week steamer service was quite insufficient for communication purposes, and a night drive in an open trap along the frozen roads from Glen Falloch to Balloch was the coldest experience I ever had. A motor launch with its engineer was hired for the period of the outbreak, and served for conveyance of bedding, furniture, food, and other supplies, and also of the staff.

These arrangements were not wholly made in advance, but matured contemporaneously with the occurrence of cases of small-pox. On January 2nd and 3rd three of the navvies developed the eruption. A man who had been twice vaccinated and had had a day or two's feverishness without eruption was retained as attendant, and the wife of the hut-keeper was also pressed into the service.

The Tarbet doctor took medical charge of both huts. A son of the keeper of the original (by that time the hospital) hut was one of the inmates of the observation hut, but refused revaccination and disobeyed strict injunctions not to visit the hospital hut. He duly developed small-pox and was transferred to the hospital hut. Two or three persons had been indirectly exposed to infection from the case of the tramp and two developed the disease.

Another centre of infection was meanwhile discovered at a navvies' hut at Ardencaple on the Gareloch. On January 10th the hut-keeper developed the disease and was removed to Knightswood Hospital, the distance being about twenty miles. Infection had been by a tramp on his way north to Crianlarich in Perthshire. I wrote to the Perthshire medical officer warning him to be on the outlook for small-pox at Crianlarich, but received the same day a letter from him warning me about Ardencaple. On the side of Loch Long, midway between Ardencaple and Ardlui, was another navvies' hut which also became involved by tramp infection, and as it was only nine or ten miles from Ardlui, the hospital hut there served for a case which occurred. Whilst visiting the Loch Long hut I found an inmate engrossed in reading the *Fortnightly Review*. Many a navvy, like this man, has a life story which he will not reveal.

The public health authority sanctioned the use of revaccination to the utmost in control of the disease, and, employing the doctor at Tarbet, the operation was, I believe, performed on every one of 600 navvies working on the railway track in Dunbartonshire, with the exception of such as were already immune through small-pox or revaccination.

The total cases in the outbreak amounted only to 12, with 2 deaths.

Regarding vaccination, I reported as follows:

Of the nineteen inmates of the hut at Ardlui, three had already had small-pox and none of these were attacked; four had been either revaccinated or their primary vaccination had been performed subsequently to the age of 12 years, thus making it equivalent to a revaccination, and none of these were attacked by small-pox, though they included the man referred to who had a slight febrile illness. Of the remaining twelve, one had four marks of vaccination, two had two marks, six had one mark, and two had no traces of ever having been vaccinated. None of those who had more than one mark were attacked. Of the six who had one mark two were attacked, and of the two who had no marks, both were attacked and one died.

The facts as to the vaccination or non-vaccination of these nineteen persons were taken down by Mr. Dunbar to my dictation on my first visit on 27th December, previous to any of them having developed small-pox.

Such an outbreak involves much hard work to those responsible for its control, and calls out all the initiative a man possesses, but the results far more than repay the labour. The scene was set in the wilds, beside lochs and frozen streams and snow-clad mountains. The whole experience made an unforgettable impression, and was an unequivocal demonstration of the value of vaccination, supplemented by emergency measures of isolation and observation of contacts.

Leicester and Small-pox.

It is impossible to complete a survey of the present-day control of small-pox without reference in some detail to what has come to be known as the Leicester Method of dealing with the disease.

The usual antivaccination history of Leicester is that prior to 1872 it was a well vaccinated town, and that after having suffered from the epidemic it abandoned vaccination. The facts, however, are very different. Before 1872 Leicester had been notorious for its neglect of vaccination, as appears, indeed, from statements made by exponents of Leicester's methods. In 1842 the guardians decided not to carry out the Vaccination Act of 1840, and in 1851 not half of the inhabitants were vaccinated. Lord Lyttleton, in introducing the Vaccination Act of 1853, cited Leicester as an example of neglected vaccination. A table of statistics of vaccination submitted to the Royal Commission by Mr. J. T. Biggs on behalf of Leicester showed a large average default excepting for the years 1868–71, and as regards the period subsequent to 1872, at a census of the vaccinal condition of a typical population of over a thousand people, taken in 1903, it was found that about 62 per cent. had been vaccinated, though no doubt many of the vaccinations would be of old date.

It happens that from time to time in recent years[6] Dr. Killick Millard, the medical officer of health, has quoted as follows from my book, *Vaccination Vindicated*, published so long ago, alas! as 1887:

In Leicester, when its time arrives, we shall not fail to see a repetition of last century experiences, and certainly there will afterwards be fewer children left to die of diarrhoea. It is to be hoped that when the catastrophe does come the Government will see that its teachings are duly studied and recorded.

As I am by way of summing up my views on the whole subject, the opportunity may be taken of commenting on the prophecy, and generally on the doings of Leicester in respect of small-pox and vaccination.

I have learned, I hope, many things in thirty years, and feel no need to maintain now all I believed then, but the prophecy above quoted was conditional. In the same paragraph I wrote:

Throughout the country there has been nothing approaching an epidemic since 1870–73, and Leicester has had little chance of getting its "immunity" tested. When another great outbreak occurs among the susceptible population of England it will be time enough then to see how Leicester comports itself under the ordeal.

In 1893 (in Stevenson and Murphy's *Hygiene*) I repeated the reservation that "since the Leicester experiment was begun it has not been subject to the test of any general epidemic like that of 1870–73." That reservation remains. Nothing comparable to the great epidemic of 1870–73 has since occurred, and Leicester's immunity has not been subjected to the stipulated test. But Dr. Millard does not give the full quotation, and in *The Vaccination Question* he definitely excises my reference to the 1870–73 epidemic. Yet in proportion to the prevalence of small-pox in Britain, or in London, Leicester stood worse in 1892–93 and in 1903–4 than it did in 1870–73. But I attach little importance to these comparisons. The essential facts are (1) that small-pox is not now, in respect of fatality or infectivity or prevalence, the same virulent disease as it had been when I wrote *Vaccination Vindicated;* (2) that glycerinated calf lymph was not then available as it is now for emergency vaccination to any required extent in Leicester or anywhere else, and (3) that the Leicester Method as expounded by its protagonists a quarter of a century ago differs in important respects from the method now followed in that town. Taking as its expositor Mr. J. T. Biggs, to whom Dr. Millard specially refers, the method as it existed, or rather as it professed to exist then, is very different from that followed now.

Several points may be noted:

(*a*) The Method was "*without recourse to vaccination.*" (The italics are by Mr. Biggs.)
(*b*) The Method was entirely voluntary; there was no compulsion.
(*c*) The same hospital was used for small-pox and all other infectious diseases at the same time.*
(*d*) The same hospital was also used for the (voluntary) quarantining of contacts.
(*e*) Compensation for loss of time (of contacts) was not offered.

The best feature has been that from the beginning contacts seem to have been searched for carefully and kept under surveillance. That is an important fact, creditable to the medical officers concerned. Houses and their contents were, of course, disinfected.

Every one of the items (*a*) to (*e*) has been given up.

(*a*) "Without recourse to vaccination." In saying that this item has been given up a reservation is necessary. I do not believe, and never have believed, that the Method ever was without recourse to vaccination, and that which never existed cannot be given up. But Mr. Biggs says so with the emphasis of italics. He repeats the statement, and before the Royal Commission he says, "We have dealt with small-pox without vaccination" (Q. 15374), and he speaks of "the abandonment of vaccination." Dr. Millard uses the same phrase, "abandonment of vaccination." He writes that "Leicester, indeed, by abandoning vaccination, has performed a 'control' experiment of some value,"[7] and refers to the epidemics which have occurred "since vaccination was abandoned" (*Public Health*, 1904, p. 627). But there is an important difference. As he observes, "It is well to define our terms." When he says "vaccination was abandoned," he means "infantile vaccination as established by law in this country." It is in this way, by this special meaning for the word vaccination in this special connexion, that Dr. Millard is able to say that Leicester has abandoned vaccination. He states the position rather differently again when he says that the method "professes to suffice for the control of small-pox without resort to universal vaccination." In his report for 1902 he wrote that "all three medical officers of health who have carried out the 'system' have been firm believers in vaccination and have not hesitated to make as full use of it as possible, short of compulsion, when the occasion for it has occurred." Therefore, when Dr. Millard speaks of abandonment of vaccination he does not really mean abandonment of vaccination. But if the chairman of the Sanitary Committee of Leicester (Alderman Windley, who has filled that office for forty years) was within even measurable distance of being correct in saying in 1887[8] that "only in a very rare instance was it (vaccination) done with consent of individuals by the ex-officer of health, Dr. Johnson, and that is so long since that he does not remember it," then there has been a vastly increased resort to vaccination, and the Leicester Method is not now in respect of vaccination what it was thirty years ago. In 1903 there were 1,084 contacts, and Dr. Millard induced nearly 800 of them living in infected houses to submit to vaccination.

The Leicester Method, in short, is not "without recourse to vaccination."

(*b*) Mr. Biggs declared before the epidemic of 1892–93:

We find small-pox very easy to deal with, and the same hospital and staff of officials deal with small-pox as with other infectious diseases. There is no compulsion. If people choose, they may go into quarantine, or they may stay out. No one's liberty is infringed.[9]

*Also, Mr. Biggs wrote, "We have one horse and one ambulance van which is kept for other diseases, whether there is any small-pox or not" (*Vaccination Inquirer*, July 1st, 1891).

There is nothing to show that removal to hospital is now any more optional in Leicester than in any other large town which possesses sufficient accommodation. That "no one's liberty is infringed" is only true if every case that is removed goes willingly—and it is unbelievable that Dr. Millard lets any patient fit for removal remain at home if the public is thereby endangered.

(*c*) The use of the same hospital for small-pox and all other infectious diseases was abandoned so early as before the end of 1892—that is, whenever small-pox became epidemic in the town, and less than two years after such use had been described as part of the Leicester Method. Not only was a separate small-pox hospital of sixty beds subsequently provided, but the whole of the ordinary hospital for infectious diseases was most prudently emptied of all other diseases and set apart for small-pox in the epidemic of 1903–4—the second since 1871–2—and Dr. Millard being now medical officer of health. It was a wise precaution, but it was not the Leicester Method.

(*d*) The quarantining of contacts at the hospital was abandoned in 1893, again when the town had to deal, not with a theory, but with a reality.[10] Dr. Sidney Coupland says, in reporting to the Royal Commission (Appendix VI, p. 3): "It is not, therefore, to be wondered at that the sanitary authority was led to abandon this essential feature of the plan known as the 'Leicester System' and to substitute for it the generally adopted practice of maintaining infected families under supervision in their houses during the 'quarantine period' of sixteen days."

(*e*) With regard to compensation for loss of time not being offered to contacts, when such compensation was recommended by the Royal Commission on Vaccination, Dr. Millard declared that "it marks the approval of the Royal Commission of one of the special features of the 'Leicester Method.'" I would not myself have regarded (*e*) as of first-class importance, but as Dr. Millard holds it to be a "special feature" it is only fair to include it in the list. Mr. Biggs said to the Royal Commission:

> I think there is sufficient evidence to prove that no compensation has been made in the shape of wages, and that all that has been done in carrying out our system has been to reimburse those whose articles of furniture have been destroyed.

The Leicester Method has in this respect, therefore, been reversed, and the reversed practice is now boldly claimed by Dr. Millard as distinctive of the Method.

Indeed, it is not vaccination but the Leicester Method in most of its features which has been abandoned in Leicester. At the same time, small-pox has in the present day become in this country a less fatal, a less infectious, and a less prevalent disease than when the Method was propounded. Under these circumstances Leicester had only 355 cases of small-pox in the epidemic of 1892–93 and 715 in 1903–4, and thus furnishes useful illustrations of the fact that, with the mild type of small-pox which prevailed in the provinces in these two epidemics, the modern method, which had taken the place of the Leicester Method, can achieve some measure of success even in a town where there is a large unvaccinated population, and where pressure towards recent vaccination is applied only to contacts.

Leicester's "Luck."—In 1904[11] Dr. Millard appreciated how much Leicester owed to the attenuated strain of virus with which it had been infected. "I fully realize," he says, "that the results of the experiment in the future may be very different from those achieved in the past. Moreover, it may have been merely a lucky coincidence that the two epidemics which have occurred since vaccination has been abandoned* have been of such an exceptionally mild type. The epidemic at Gloucester was far more fatal." But Leicester has shared in the unparalleled freedom from small-pox which this country has enjoyed since 1904, and now Dr. Millard derides the "luck" theory on which he would have been able to fall back had a severe type of small-pox with high infectivity been experienced in Leicester. In 1914 he writes:[12] "Many people appear to think that, owing to some extraordinary good luck, small-pox has never come to Leicester in a fatal or epidemic form since vaccination was abandoned." Again: "Hitherto it had often been alleged that the 'Leicester Method' had never been adequately tested, and that Leicester had been lucky."[13] Thus in 1914 Dr. Millard ignores the reservation which he had made ten years earlier as to luck. He did not know, and none of us knew, otherwise we would have been prophesying smooth things, that the mild small-pox which first unequivocally showed itself in the epidemic of 1892–95 was the beginning of an experience which was to last and develop up till the present time. But he need not now jeer at himself, under the pseudonym of "Many people," for having prudently provided, lest the position should prove untenable, the bridge of retiral which he had builded under the name of Luck.

In one important respect, however, Leicester has been lucky. It is impossible to read the reports of Dr. Priestley on the epidemic of 1892–93 and Dr. Millard on that of 1903–4, without being impressed by the admirable skill and activity and vigilance which distinguished their management and control of the outbreaks. A public official has no easy task in carrying out measures which are contrary to the prejudices or opinions of the authority which he serves, and it requires both tact and courage to deal successfully with so difficult a position. There is abundant evidence that in Leicester the officers have been well endowed in both respects. This has constituted Leicester's Luck.

WHAT OF THE FUTURE?

More than a quarter of a century ago I wrote that "it will not do to assume that throughout the world, from now till the end of time, small-pox will continue to rage epidemically unless prevented by universal vaccination. Just as leprosy has died out from this country and is even now dying out from Norway and Sweden and Iceland, so may small-pox or scarlatina, or measles, or any and every zymotic disease, die out in the future from this and every other land. And, quite conceivably, small-pox, rather than either scarlatina or measles, might be the next in order of the maladies to disappear from the civilized world."[14] But, I went on to argue, epidemics had been too recent and too severe to justify any assumption of such disappearance. During the quarter of a century since these words were penned, the position has vastly improved, but even yet one dare not assume that danger has disappeared or become negligible.

The European war has passed and the armies are returning to their own countries. It was under these circumstances that the small-pox pandemic of the early Seventies developed. Up till now no such sequel has arisen. But in considering the after-war possibilities of reintroducing small-pox into this country, there is a substantial risk of importation by persons arriving during the incubation period, especially from countries like Russia or Poland when communication with them is again opened up. As before noted, ordinary traffic carrying passengers and cargo from the North Sea and the Baltic has already begun.

It has, however, to be borne in mind that the belligerent armies have very extensively received the protection of revaccination. What the details are for each army we do not know, and we have not yet the particulars even for the British Forces, but I would venture to hope that the amount of vaccination against small-pox in the British army must have greatly increased the total anti-variolous protection of the United Kingdom as a whole and especially of the adult male part of the population. Always in the past since the vaccination laws were enacted the child population has most benefited by legislation, and the transference of small-pox prevalence and mortality from earlier to later periods of life has been one of the phenomena most characteristic of the Jennerian prophylaxis. Now, however, infantile vaccination is largely fallen into disuse, whilst the male adult population is probably better protected than ever before. For though revaccination was always obligatory in the army, yet until this war began the army was so small as to count for comparatively little in the country as a whole. As years pass it will be interesting to watch the course of small-pox prevalence under these conditions, that is, if small-pox does resume its prevalence. Still better will it be if the disease in its old form finally succumbs to the mild strain which is now so common.

Wars have been followed by various pestilences amongst the civil population. As recorded by Dr. Prinzing,[15] bubonic plague, typhus fever, dysentery, typhoid fever, and small-pox have been concomitants of great world

* Dr. Millard does not mean that vaccination was abandoned. His special definition of the term vaccination has to be borne in mind.

struggles. The virulent pandemic of influenza has so far been the only outstanding accompaniment of the greatest of all wars, though in Germany, as already noted, the enormous number of Russian prisoners introduced the infection of small-pox, which obtained more hold than that country has ever experienced since it adopted its great system of vaccinal protection. It is too soon yet to prophesy that we have seen the last consequences of the European war in respect of epidemic disease. If, however, small-pox were to invade this country, the measures at our disposal and our preventive equipment generally should enable us to deal with it, despite the fact that, on the whole, we are going back on, rather than developing, our position in regard to general protection obtained beforehand. If the disease is of the mild or American type with low infectivity, it is all the less to be feared. If, on the other hand, the old European type of the Seventies should begin to develop, the means for meeting it are at hand. If vaccination of contacts, supplemented by isolation, disinfection, and the other measures for controlling epidemics were to prove insufficient, then I have no doubt that the spread of infection would result in the general adoption of the one solitary measure capable of controlling an extensive epidemic. That measure is vaccination, but it will be all the greater triumph of vaccination if even a limited resort to it under the modern method suffices to prevent any outbreak from assuming epidemic or pandemic proportions. Just as Lister's antiseptic system finds its greatest triumph in the aseptic system which evolved from it, in the same way success of the modern method of small-pox control will be the greatest triumph of the Jennerian prophylaxis.

In concluding these lectures, let me express my thanks to medical officers of health in various parts of the country who have kindly replied to many inquiries; to Dr. John Brownlee, of the Medical Research Committee, I am greatly indebted for aid in abstracting particulars from published reports; and I have again to thank the Royal College of Physicians for honouring me with the Milroy Lectureship for 1919.

REFERENCES.
[5] *Glasgow Medical Journal*, July, 1911. [6] *Public Health*, July, 1904, p. 609; *The Vaccination Question*, 1914, p. 101; *Public Health*, March, 1917, p. 115. [7] *Public Health*, July, 1904; *The Vaccination Question*, 1914, p. 44. [8] *Vaccination Inquirer*, November, 1892, p. 128. [9] *Vaccination Inquirer*, May, 1891. [10] Dr. Priestley's Report, p. 97, and Royal Commission's Final Report, par. 483. [11] *Public Health*, p. 627. [12] *The Vaccination Question*, p. 102 [13] Ibid., p. 137. [14] Stevenson and Murphy's *Hygiene*, vol. ii, 1893. [15] *Epidemics Resulting from Wars*, Clarendon Press, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INFANT FEEDING.

IN Dr. Laing's article in the BRITISH MEDICAL JOURNAL of February 8th he refers to the system of long intervals and limited feeds advocated at many infant welfare centres, and expresses the fear that it will bring discredit on them, "for the mothers will find that babies fed in this manner do not do so well as others." As an infant welfare medical officer having some 1,000 babies under my supervision, I should like to express my entire agreement with Dr. Hickling in her reply to Dr. Laing. Fourteen years ago I saw such splendid results from the "three-hourly day and no night feeding method" adopted as the routine at some of the largest maternity hospitals on the Continent that I have recommended it ever since, with excellent results.

At present I have a dozen pairs of twins attending my clinics some of whom weighed only from 4½ to 6 lb. at birth, and all of whom have made good progress with three-hourly feeds during the early months. I found several of these poor mothers fed their infants only three-hourly from the first week because the process of feeding two, in addition to the necessary toilet, took so long that more frequent feeds were impracticable. I had a set of triplets attending one of my clinics brought up on what Dr. Laing calls "this system of starvation." At the age of 10 months none of the three weighed less than 20 lb., and they are still "going strong." To-day I examined a perfectly healthy baby weighing 19 lb. 10 oz. at 8 months old who, the mother assures me, has only been fed three times in the twenty-four hours—that is, at 7 a.m., 1 p.m., and 7 p.m.—ever since the age of 3 months, though I usually advise five or six feeds in the twenty-four hours at 3 months.

I have never been able to detect symptoms of starvation apparently due to three-hourly feeding. The infants suffering from the worst malnutrition I have seen recently were being fed two-hourly, some of them quite regularly, the mother said, and one of them every hour and a half. Scores of infants have been brought to me at hospital or clinic suffering from dyspepsia and loss of weight on two-hourly feeds, who have begun to gain weight the first week after the interval between feeds was changed to three or four hours.

While not wishing to be dogmatic, I am firmly convinced by experience (including residence at a hospital where my bedroom was next the mothers' and infants' wards) that nearly all normal babies make the best progress when kept eight hours at night without a feed from the first, though one or two teaspoonfuls of boiled water may be given if the infant wakes during the first few nights. The habit of sleeping for eight consecutive hours at night is invaluable to mother and baby, and leads to an improvement in the quality of the milk.

I fully agree with Dr. Laing that in infant feeding no hard and fast rule as to quantity is practicable. When consulted as to the quantity to be first given to a baby previously on the breast, I always take the size, weight, and appetite into account. I tell the mother she may need to increase the quantity, if possible keeping to the proportions suggested, till the baby is seen again in a few days.

Space prevents me from giving statistics, but from 100 unselected cards, taking all cases seen by me under a month old, when the interval between feeds was lengthened from two to three hours, I find the average gain in weight for the following months is from 1 lb. to 2 lb. 6 oz. in a month.

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PROFLAVINE OLEATE IN THE TREATMENT OF OPEN WOUNDS.

I HAVE read with interest the paper by Drs. Berkeley and Bonney in your issue of February 8th on the subject of proflavine oleate in the treatment of open wounds. During my work in France for the past two years I have treated all cases of open wounds with modified bipp. The formula for this is: Iodoform 2 parts, bismuth subnitrate 1 part, vaseline 12 parts, and enough hard paraffin to give the preparation the consistency of butter. This is spread thickly on a double layer of gauze and placed over the whole raw surface of the wound, whether flat as a guillotine amputation stump or irregular as a deep ragged wound of the trunk or limbs. This dressing need only be changed every second to fifth day, according to the amount of discharge from the wound. Like the proflavine oleate, it peels off the wound without causing any pain. Occasionally it may cause the granulations to become flabby if used for very prolonged periods, and then it should be replaced by some stimulating preparation, such as Mercière's fluid, which consists of iodoform, guaiacol, eucalyptol, balsam of Peru, of each 10 grams, alcohol 100 grams, ether 1,000 grams.

But at the present time surely no large open wound should be left to close by a gradual and lengthy process of granulation without an attempt being made to close it or at least diminish its size by secondary suture. As a preliminary to this operation, I have found this ointment excellent. It also has the advantages of being moderately cheap, easily made, and non-poisonous, even when used in large quantities and over lengthened periods. The painlessness of the dressings under this method of application is truly remarkable and is enormously appreciated by the worn-out patient.

Dublin. R. ATKINSON STONEY.

As a result of the ordinance recently issued by the Civil Government of Madrid making vaccination compulsory more than 400,000 persons in the city and province have been vaccinated.

SURGEON-GENERAL MERRITTE IRELAND, Chief of the Medical Corps of the United States Army, and Colonel Walter E. Bradley have been presented by General Pershing with the Distinguished Service Cross in recognition of their services during the war.

Reviews.

WAR PENSIONS

THE time is ripe for the appearance of an authoritative and comprehensive work on pensions written from the medical point of view, and we congratulate Drs. JONES LLEWELLYN and BASSETT JONES on the accomplishment of this in their volume on *Pensions and the Principles of their Evaluation*.[1] The previous experiences of the authors, the results of which were given to the medical world in their book on malingering, has doubtless stood them in good stead in the study of the serious and complicated questions connected with the assessment of war pensions. The war-disabled men in the British forces—we are not sure whether the overseas contingents are included or not—are said to number a quarter of a million, and as in all these cases medical opinion must decide upon the degree of disability and the consequent amount of the pension or gratuity, the value to the profession of a thorough study of the subject must be obvious.

For it is not only the present condition of the patient which must be correctly gauged, but his probable condition years hence must also be estimated. When it is noted that in civil life, according to the German Imperial Assurance Office, twenty-one years may elapse before adaptation to a mutilation is complete, some idea may be formed of the difficulties besetting the medical assessor of pensions. In their historical review of the subject, and elsewhere in the book, the authors draw attention to the unfortunate experience the United States have had of the bad effects of ill-conceived pension legislation, especially when it can be turned to purposes of political corruption. A year after the cessation of the War of Secession there were 126,722 pensioners on the roll, entailing an expenditure of nearly 15½ million dollars, but forty-four years later the number of pensioners had *increased* to 946,914, and the amount of their pensions to nearly 162 million dollars. There are opportunities and temptations afforded by our own pension regulations that should make us take warning from the United States.

What may be called the lay, or administrative, side of the question is fully dealt with, the different kinds of disability, such as ankyloses, fractures, cicatrices, nerve injuries, injuries of muscles, of joints, and of the aural apparatus, as well as amputations, are adequately considered. A special section on eye injuries, to which we hope to refer later, is contributed by Mr. W. M. BEAUMONT.

In our latest pension regulations the need of discipline seems to have been forgotten in altruistic enthusiasm for the "wounded hero." But it should be remembered that even in voluntary forces there are many unheroic persons and some dishonest schemers. How many more may be looked for under a compulsory system of enlistment! Malingering, denounced in the Warrant of 1829, which the authors rightly describe as "virile," is not mentioned in its emasculated successors of 1917 and 1918, in which it is tacitly assumed that all claims are bona fide, and nearly all pensioners honest. Honesty is a comparative word, and when the terms of a Warrant suggest the reflection that dishonesty is the best policy, human nature is not often likely to resist. A pension once made *permanent* may only be revised in the direction of increase, and not of decrease. The authors' contention that all pensions should be periodically revised with a view to either increase or decrease seems very sound, as also is their opinion in favour of a much wider use of gratuities in place of pensions. Experience in the administration of the Employers' Liability Acts has established beyond cavil the curative effect of the lump sum in compensation of injuries. A curious anomaly in the regulations is concerned with refusal of treatment. A pensioner who refuses medical or manipulative treatment may suffer reduction of his pension, but he may decline operation with impunity, although it may be practically certain that he would be cured thereby. This appears to be merely a pandering to an ignorant popular fear of "the knife." It is to be hoped that many men who now decline training in new occupations will later on be persuaded to undergo it, but at present in all the countries concerned a reluctance to be taught and a tendency to try and live on the pension is noteworthy. The authors advise that unreasonable refusal of training should be penalized by diminution of pension.

The chapter on functional adaptation in relation to disabilities is valuable, and we make no apology for transcribing the gist of some of the authors' conclusions:

(1–2) That this biological phenomenon is Nature's own method of compensation.
(3) That its beneficent effects are seen in disease equally with injuries.
(4) That the determination of the degree of its realization shall form an integral part of the process of evaluation, both in cases of compensation and of pensions.
(5) That monetary allowances should continue as long as functional adaptation is incomplete,
(6) Until which time the residual incapacity cannot be estimated; and
(7) That pensions should not be made permanent until that time.

In France a ready-reckoner guide (*guide barème*) to the assessment of disability has been drawn up, which is far more complete and scientific than our own crude schedule, from some of the anomalies of which it is free. The present percentage method of estimating disabilities leads in cases of multiple injuries to glaring absurdities; a remedy for this is proposed by our authors in the shape of a simple mathematical formula to be found upon page 274. We agree with them that instead of the crude method of adding together the percentages of each of several injuries—as, for instance, one Syme's amputation = 50 per cent., therefore two Syme's amputations = 100 per cent., thus arriving at the incorrect result of estimating the disability as total—the disability should be estimated by the functional result. The authorities, however, appear to hold the view that the evaluation of any disability must not be reduced for fear of popular clamour, and therefore the subject of a Syme's amputation will continue to be pensioned at 50 per cent., while the man far worse off, with an amputation a few inches below the knee, will receive no more. The chapters on nerve injuries are full of valuable information and advice; those on amputations are also full and up to date. Few will, we think, be found to approve of the official estimate that loss of the left arm at the shoulder-joint is only equivalent to loss of one lower limb at the hip-joint. In many occupations the subject of the latter mutilation is capable of earning full wages, while the occupations must be few, if any, in which the subject of the shoulder exarticulation can hope to find his earning capacity approaching the normal.

We have touched on a few of the many points of interest in this book, and have said enough to show its interest and value. It is an extraordinarily thorough and painstaking work, and a credit to British medicine. It will probably long remain the standard work on pensions in the language. There are only two midges in the ointment—the index leaves a good deal to be desired in fullness of detail, and no references are given in the text or elsewhere to the various publications quoted.

[1] *Pensions and the Principles of their Evaluation.* By Llewellyn J. Llewellyn, M.B.Lond., and A. Bassett Jones, M.B.Lond. With a section on Pensions in Relation to the Eye, by W. M. Beaumont. London: William Heinemann (Medical Books), Ltd. 1919. (Roy. 8vo, pp. xxvii + 702. 30s. net.)

"WAR SHOCK."

M. A. LÉRI has written an interesting and readable little book, the result of his personal observations on the varied class of war "shock" cases from the aid post to the base. He adopts a very simple classification, and divides shock cases into three classes, the "commotionné," the "contusionné," and the "emotionné," and he has called his book *Commotions et Emotions de Guerre*.[2] The first two classes include the effects of explosions on the central nervous system. The "commotionné" is the concussion case, which clears up quickly and rarely leaves after-effects. The "contusionné" is a less common case, and on it the prognosis, as the author rightly insists, is much more serious. Symptoms frequently supervene after some hours or even days, and the damage to the central nervous system is considerable. The third class, the "emotionné," is the class to which the term "shell shock" is popularly applied in this country. The author holds that such cases can, with certain necessary exceptions, be dealt with very effectively at the front.

[2] *Commotions et Emotions de Guerre.* By Andre Léri. Collection Horizon. Paris: Masson et Cie. 1918. (Cr. 8vo, pp. v + 196. Fr. 4.)

M. Léri follows these cases from the field to the base, describing their symptoms and treatment in the various centres reached. Without going into detail certain features may be noticed. In the first place, the author very rightly observes that hysterical symptoms may supervene on any one of these classes, and points out forcibly the necessity for those in charge of such cases to search carefully the history of the original shock, in order to appreciate the nature of the trauma and to distinguish it from its hysterical additions. Secondly, M. Léri insists that a careful diagnosis must be made. It is only too true that a proportion of cases in which there is some organic trouble get labelled hysteria or neurasthenia. A complete and thorough examination should be made by all possible means. Lastly, it is refreshing to find that the author considers that the "emotional" case can be stopped on the spot to a great extent. In any case, this type of patient should not get beyond the ambulance area or the special army neurological centre. Only a small minority should be allowed to pass the "barrage" and drift to the lines of communication and base, there to become hospitalized and hopeless.

There is a chapter on the pathology of commotional cases and another on mental diseases associated with war. The book closes with a summary of treatment and of medico-military decisions.

The author gives us a clear and straightforward work, which is well prefaced by Professor Pierre Marie. We would suggest that the book would be enhanced in value by a greater number of illustrations and more detail concerning the French methods of treatment, especially in the emotional class of patient.

THE LIFE AND LETTERS OF JOSEPH BLACK.

IT is a fundamental biological doctrine that no organic product can be fully understood until its history is known. Indeed, this statement is but an epitome of that view of evolution which has formed the basis of biological teaching for the last sixty years. Yet until recently few teachers of science have regarded knowledge itself in this light. It is now, however, gradually coming to be recognized that scientific teaching can only attain a philosophic basis by including the history of science. Among the earliest to adopt this attitude was the late Sir WILLIAM RAMSAY, and none who attended his course on the history of chemistry, a subject on which he lectured regularly for many years, will forget the stimulus of his learning, humour, and sympathy.

As a historian of science Ramsay belonged rather to the school of those who seek to trace the development of ideas and principles than of those who love to dwell on the personalities of the heroes of science. In his *Life and Letters of Joseph Black*,[3] which Ramsay has left as a scholarly memento of his historical course, he nevertheless appears in the light of a literary biographer and antiquarian. It is peculiarly appropriate that the modern explorer of the gases of the atmosphere should deal with the work of his distinguished predecessor and countryman. In many respects the men were alike. Both were of Scottish extraction and spent much of their lives as teachers at Glasgow. Both devoted themselves especially to physical chemistry and above all to the chemistry of gases. Both were unusually skilled experimenters and singularly cautious reasoners. The great discoveries of both were led up to by their accurate quantitative repetition of known experimental facts.

Joseph Black (1728–1799) was born in Bordeaux and passed most of his life as a professor of chemistry, first in Glasgow and later in Edinburgh. His most important work was his demonstration of the real nature of carbonic acid gas; he anticipated Lavoisier and laid firm the basis of modern chemistry by his appeal to the balance. His relation with James Watt (1736–1819) and other captains of industry was prophetic of the future of chemical science, and his life may be regarded as the prototype of those who have introduced scientific methods into commerce. In spite of his inspiration as a teacher, Black was an odd, lonely, and somewhat eccentric character, who thought much, wrote little, and left his papers in a state of great disorder. They were arranged and published by his successor in the chair at Edinburgh, John Robison (1739–1805), but Sir William Ramsay has found much new and instructive material among the traditions, records, and family papers of the great Scots chemist. The book has a number of pleasing illustrations, and among them several entertaining cartoons from *Kay's Portraits*. This posthumous work of Ramsay is a worthy memorial of both author and subject.

[3] *The Life and Letters of Joseph Black, M.D.* By Sir William Ramsay, K.C.B., F.R.S. With an introduction dealing with the Life and Work of Sir William Ramsay by F. G. Donnan, F.R.S. London: Constable and Co., Ltd. 1918. (Med. 8vo, pp. xix + 148; 7 plates. 6s. 6d. net.)

NOTES ON BOOKS.

THE *Year Book of Pharmacy*[4] for 1918 consists mainly of a valuable series of abstracts of current scientific and practical work in pharmacy and the allied subjects, together with an account of the transactions of the British Pharmaceutical Conference in July, and other matters of importance to chemists and druggists. It is a publication indispensable to those interested in pharmacy.

The *Year Book of the Carnegie Endowment for International Peace*[5] for 1918 dates only from March of that year, a month when the prospects of civilization in Europe were at their blackest. The volume records the steady effort of the Endowment in a cause appearing almost hopeless at that time. This year's volume will no doubt appear under happier auspices. From the same Endowment we have received a volume recording the controversy over neutral rights between the United States and France in the closing years of the eighteenth century.[6] The volume is of great interest to historians. Read to-day, it illustrates the little service rendered by precedent in the solution of the most recent acute problems of political economics. We have also received a copy of *The American Declaration of Independence, and the Articles of Confederation and the Constitution of the United States*,[7] another volume that should be in the hands of historians.

The Yearbook of Scientific and Learned Societies,[8] of which the thirty-fifth issue has now appeared, gives a brief record of work done in science, literature, and art during the preceding twelve months, together with information regarding those branches of the civil service which carry out or supervise scientific research. The *Yearbook* is compiled from official sources, and forms a very useful work of reference. The present volume is as complete as any of its predecessors, though the preface records that the difficulty of collating the information has been greater than ever before, especially for the medical section, as so many responsible officers have been absent on war work. A number of societies not previously appearing are included in this edition, and the publications of the Medical Research Committee during 1917–18 are recorded. The entry referring to the British Medical Association gives the officers of the Association and the members of Council.

To those in search of a good and practical account of the best methods of canning and bottling fruit and vegetables we recommend a pamphlet by GOODRICH and KEEBLE.[9] Here the reader finds not only the practice but also the theory of the art of preserving set out, a great advantage to those who like to understand what they are doing. The experience of the last few years must have made plain to all of us the importance of being able to preserve perishable fruit and vegetables when, as their habit is, they ripen *en masse*, glut the market, and are wasted wholesale. Optimists like to think that preserving will in the near future be an important village industry; in this little book, which may be cordially commended to a wide circle of readers, they may learn the technique of the art.

[4] *Year Book of Pharmacy.* Edited by J. O. Braithwaite. London: J. and A. Churchill. 1918. (Demy 8vo, pp. 516.)

[5] *Year Book of the Carnegie Endowment for International Peace.* Founded 1910. No. 7, 1918. Washington, U.S.A.: Head Quarters of the Endowment. (Sup. roy. 8vo, pp. xiv + 272.)

[6] *The Controversy over Neutral Rights between the United States and France, 1797–1800.* Edited by James Brown Scott, Director, Carnegie Endowment for International Peace, Division of International Law. New York: Oxford University Press. London: H. Milford. (Sup. roy. 8vo, pp. vii + 510. 15s. net.)

[7] *The Declaration of Independence, the Articles of Confederation, and the Constitution of the United States.* Edited with an introductory note by James Brown Scott. New York: Oxford University Press. London: H. Milford. (Sup. roy. 8vo, pp. xix + 94. 4s. 6d. net.)

[8] *Yearbook of the Scientific and Learned Societies of Great Britain and Ireland.* Thirty-fifth annual issue. London: C. Griffin and Co., Ltd. 1918. (Post 8vo, pp. 333. 9s. net.)

[9] *Canning and Bottling.* Simple Methods of Preserving Fruit and Vegetables. By Helen P. Goodrich. With an introduction by F. Keeble, C.B.E., F.R.S., D.Sc. London: Longmans, Green and Co. 1918. (Post 8vo, pp. vi + 70. 2s. net.)

British Medical Journal.

SATURDAY, APRIL 5TH, 1919.

THE CLINICAL MEETING NEXT WEEK.

IT was in the hope that many overseas medical officers would be able to attend the special clinical meeting of the British Medical Association in London next week that its date was fixed so early as the beginning of April. The invitation is addressed to all overseas medical officers, whether they are members of the Association or not. We understand that notification has been made by the medical directors of these forces that special consideration is to be given to applications by medical officers for leave to attend the meeting. The invitation is addressed equally to all medical officers of the Medical Service R.N., of the Army Medical Service, of the Royal Army Medical Corps, and of the Royal Air Force, whether or not they have yet joined the Association. We understand that the D.G., A.M.S., has notified the Home Commands that special consideration is to be given to applications for leave by medical officers desiring to attend the meeting. Officers of the Medical Corps of the United States Army are also cordially invited to attend. All these officers, as well as all civilian members of the Association who wish to attend the meeting, are requested to fill up the form which will be found in the centre of this week's issue of the JOURNAL, unless they have already filled up and sent in a similar form inserted in previous issues of the JOURNAL. The receipt of this information will greatly facilitate the work of the committees which are making the arrangements for the entertainments and sectional meetings. A registration office will be open in the entrance hall of the Imperial College of Science, South Kensington, from 2.30 to 5.30 p.m. on Tuesday, April 8th, and at 9 a.m. on subsequent days. A card admitting to all meetings of the sections will there be issued, but it is asked in particular that those who wish to attend the reception to be given at the Guildhall by the Metropolitan Counties Branch on Tuesday evening, and that by the Royal Society of Medicine on Wednesday evening, will indicate their preference on the form, and at the same time state whether they wish to attend the Popular Lecture on a "Casualty Clearing Station at Work," by Mr. Cuthbert Wallace, on Wednesday afternoon at 5 p.m., so that seats may be allotted to them. Mr. Wallace, who has recently retired with the rank of Major-General after serving for several years as consulting surgeon with the First Army in France, was the author, with Major-General Sir Anthony Bowlby, of the article on the development of British surgery at the front, published in the JOURNAL in June, 1917, and afterwards republished in the volume, *British Medicine in the War*. The lecture will be illustrated by lantern slides of photographs taken in the forward areas of the British armies in France. The number of invitations that can be issued to the entertainments at the Guildhall and the Royal Society of Medicine is limited, as is also the number of seats available at the dinner at the Connaught Rooms on Thursday evening. The Imperial College of Science, which has been lent to the Association for the meeting by the Rector, Sir Alfred Keogh, G.C.B., faces the Imperial Institute; the nearest stations are the South Kensington stations of the Underground Railways and of the Piccadilly Tube. There are several lines of omnibuses which run from Charing Cross and Piccadilly to the southern, and others to the northern end of Exhibition Road; the distance on foot from the stopping places is in both cases about five minutes, from the stations a little longer.

In instituting this special clinical meeting the Association has had the cordial approval of the senior medical officers of all the overseas contingents, and of Colonel Whaley, the liaison officer in this country of the Medical Corps U.S.A., as well as of the Director-General of the Medical Service, R.N., and of the Director-General A.M.S. in this country, the Director-General Medical Services in France, and the Air Force. The General Committee of the meeting and the various subcommittees have had the assistance of officers of the overseas contingents. Colonel J. G. Adami, F.R.S., Canadian Medical Head Quarters, London, is indeed chairman of the Programme Subcommittee, and the comprehensive character of the work of the sections is largely due to his wise guidance in the chair. One of the secretaries of the Section of Medicine is Colonel Millard, C.M.G., D.D.M.S., Australian A.M.C., who succeeded Colonel C. T. C. de Crespigny, D.S.O., who has recently returned to Australia; Major A. M. W. Ellis, C.A.M.C., is associated with Dr. Arkwright of the Lister Institute as secretary of the Section of Preventive Medicine and Pathology. At the discussion on influenza, for which the Sections of Medicine and of Preventive Medicine and Pathology will meet together on the morning of Thursday, April 10th, Colonel Haven Emerson, of the Medical Corps U.S.A., will be in the chair, and after Major-General Sir Wilmot Herringham, A.M.S., has dealt with the clinical aspect of the disease, and Captain M. Greenwood, R.A.M.C., with its epidemiology, Major F. B. Bowman, Canadian Army Medical Corps, will discuss its etiology, with special reference to filter-passing virus. A further contribution to this subject, which is at present exciting so much interest both among pathologists and clinical physicians, will be made on Friday, April 11th, in the Section of Preventive Medicine and Pathology, when Major-General Sir John Rose Bradford, K.C.M.G., F.R.S., Captain E. F. Bashford and Captain J. A. Wilson will make a communication on a filter-passing virus in certain diseases, with special reference to polyneuritis, encephalitis, trench fever, influenza, and nephritis; on the afternoon of the same day they will give a demonstration at the Lister Institute, Chelsea Gardens.

Opinions differ as to the probability of the re-establishment of malaria in this country, but there can be no two opinions as to the possibility, since the disease was once prevalent in certain districts, and anopheline mosquitos are known to exist to-day in a good many parts of England and Wales. The difficulty of completely eradicating the infection is well recognized, and the return to civil life of many soldiers who have suffered from malaria in the Balkans or Mesopotamia may conceivably lead to infection of our native anophelines. The fact that there is a possibility of the reappearance of malaria in this country will lend particular interest to the discussion on the subject to be opened in the Section of Preventive Medicine and Pathology on Friday, April 11th, by Lieut.-Colonel S. P. James, I.M.S., who had immense opportunities of studying the subject in India, was sanitary A.D.M.S. of the Indian Expeditionary Force, and is now medical inspector to the Local Government

Board. Sir Ronald Ross, F.R.S., who will take the chair at this meeting, intends afterwards to give a demonstration on the subject with an exhibition of specimens; a demonstration on malaria will be given also at the London School of Tropical Medicine on Wednesday afternoon.

A very special effort has been made to render the work of the meeting as practical as possible, and, as will be seen from the detailed programme inserted in the middle of this and recent issues, a large number of demonstrations will be given in the afternoons, many of them in direct relation to the subjects discussed in the sections. Thus Colonel L. W. Harrison, D.S.O., will open a discussion on venereal diseases in the Section of Medicine on Friday, and will give a demonstration each afternoon at the Military Hospital, Rochester Row; each demonstration will be in three parts—on syphilis, on the prevention of gonorrhoea, and on laboratory methods; each part will last half an hour. Again, the discussion on Friday on prognosis in cardio-vascular affections, to be opened by Dr. Thomas Lewis, F.R.S., in the same section, with Sir James Mackenzie, F.R.S., in the chair, will be illustrated by demonstrations of the newer methods in cardio-diagnosis at the National Heart Hospital, Marylebone, and of cases and specimens illustrating cardio-vascular disease, by Dr. Lewis at University College Hospital. The discussion on war neuroses—with which the Section of Medicine will open its proceedings, when Sir David Ferrier will be in the chair and Lieut.-Colonel F. W. Mott, F.R.S., will open the discussion—will be followed on a later day by a special demonstration at the Maudsley Clearing Hospital, Denmark Hill. Again, in the Section of Surgery the consideration of reconstructive surgery at the meeting on Friday—when Sir Robert Jones will be in the chair and the subject will be introduced by Majors R. C. Elmslie and W. R. Bristow, R.A.M.C.—will be illustrated by a demonstration of orthopaedic methods at the Special Surgical Hospital, Shepherd's Bush, on that day and on Wednesday. A series of demonstrations will be given at the Royal College of Surgeons, as indicated in the Programme, and on Thursday afternoon the Royal College of Physicians of London will receive those who would like to see the portraits and books at the College, and to hear the President, Dr. Norman Moore, describe some of them.

That the discussions in the sections are all of very present interest is indeed proved by the large number who have signified their wish to take part. In order that all who are desirous may participate and that the material may be presented in the form best calculated to arrest and maintain the attention of the audience, the Programme Committee requests that all communications shall be spoken, not read, and that those taking part in any discussion will keep to the point, confining themselves strictly to the subject matter of the opening address or addresses. These addresses have been forwarded to the secretaries and have been printed and distributed in advance to the participants. It has further been determined that no opening address shall exceed twenty minutes in delivery; that the openers be asked not to read their addresses *in toto*, but to take them as read, and to confine their remarks to such section or sections of the printed address as they consider to need elaboration or emphasis; and that those taking part in the discussions be each granted a maximum of seven minutes for their speeches. The opening addresses in all the sections are being published in a volume—the *Handbook* of the Meeting—which will be on sale in the Registration Room.

TRAINING IN OPHTHALMOLOGY.

"It is notorious," wrote the Ophthalmological Society of the United Kingdom in a memorial it presented to the General Medical Council in 1891, "that the general body of the profession does not possess a competent knowledge of the diseases of the eye." In the report presented in 1917 by the Departmental Committee of the Local Government Board on the Welfare of the Blind this statement was endorsed as still applicable. That this unsatisfactory state of affairs should still exist is not the fault of that branch of the profession which has brought ophthalmology in this country to the distinguished place it holds. Eye surgeons, through their special societies, and through the British Medical Association, have memorialized the General Medical Council on many occasions without attaining any really effective reform. The endeavour of the ophthalmic surgeon has been to secure that within the medical curriculum the student shall have a minimum course of instruction in the diagnosis and treatment of the diseases of the eye, and that the importance of this teaching should be impressed upon him by the setting of questions upon eye diseases at the final pass examinations. In 1879 twenty-four prominent ophthalmic surgeons petitioned the General Medical Council; the Council, upon the advice of the examining bodies, refused to grant the request of the petitioners. In 1906 the lack of knowledge of ophthalmology by the candidates was a subject of comment by the Council's own Examination Committee, and in 1910 the Council had so far awakened to a sense of the situation that it agreed to the somewhat equivocal resolution of its Committee to the effect that while it "did not think it necessary to insist that every student should be examined in ophthalmology," it was yet "of opinion that all students should be liable to be examined in some branch of the subject." In 1911 the British Medical Association urged that ophthalmology should be made compulsory in the curriculum, but, in reply, the General Medical Council merely referred the Association to its report of the previous year.

The serious effects which flow from this deficiency in the training of medical men has recently again been the subject of investigation—this time by the Council of British Ophthalmologists, which is composed of representatives of the Ophthalmological Society, of the Section of Ophthalmology of the Royal Society of Medicine, and of the Oxford Ophthalmological Congress. Its report has just been issued, and it appears from it that the Council judiciously took the course of first investigating the procedure of the many examining boards and universities in this and other countries. This course was the more judicious because it is averred by many that if special provision were made for teaching the student ophthalmology and examining him in that subject the already overloaded curriculum would become unbearably heavy. If this plea were true in fact, we ought to find ophthalmology generally absent as a subject of instruction and examination throughout the world. But it is not. An analysis of regulations of a wide range of universities shows that Great Britain stands almost alone in granting diplomas to practise medicine without evidence of adequate knowledge of eye diseases—there are still three examining bodies which do not even require a certificate of attendance at a three months' course of clinical instruction. In Ireland and in the great majority of foreign universities special courses in ophthalmology, including set lectures and clinical instruction, are prescribed, and it is one of the

subjects of the qualifying examination, the examiners being invariably ophthalmic surgeons.

So much for the practicability of the proposal. The eye surgeons of this country have urged for many years that the regular practice of other countries disproves the assertion as to the student's back being broken by the addition of ophthalmology to his curriculum. It might even be argued that he gained something in method by the thoroughness with which the subject is dealt with by some foreign universities. The Council of British Ophthalmologists is modest in its estimate of what is required. All it asks for is attendance at an ophthalmic clinic for not less than six hours a week during a period of three months, that this period of clinical training shall be supplemented by a course of systematic lectures or clinical classes, and that a stimulus should be given to satisfactory attendance on this course of instruction by the institution of an examination in ophthalmology as an integral part of the qualifying examination by all those licensing bodies which have not hitherto included it in their schedule.

The Council has not been exacting in planning its request, and it is to be hoped that the General Medical Council will reconsider its last decision, that of 1910. There can be no doubt that a knowledge of eye work is indispensable to the medical man. The ability to use the ophthalmoscope, if that were made the sole subject of training, would alone repay all the time that would be expended in this three months' course. Can it be pretended that a medical practitioner is a competent physician who cannot determine whether a fundus is or is not normal? No matter what work the medical man may eventually take up, the ability to see with his own eyes under a high magnification a field of nerve tissue, a great nerve, and a spread of arteries, veins, and capillaries, must always be to his advantage. By no other means can he so nearly investigate the secrets of the body of his patient. Apart from the power given by this means of clinical investigation there is the increasing industrial importance of the eye to be considered. Medical work in modern factories demands a competent knowledge of the minor surgery of the eye, the best means of protecting the eye from injury, and the approved modes of discovering the visual capacity of workpeople. Finally, there is the ever extending field of eye work in the schools. All these circumstances justify the demand for a satisfactory training of the practitioner in eye work; this can best be attained if the work is begun during his student days, and (so long as human nature remains as it is) by impressing upon the student's mind the importance of the subject through his qualifying examination.

While admitting the urgency of the claim for ophthalmology, and the force of the argument drawn from the action of other countries, it must be obvious that the admission of the claim raises a matter of principle which has never yet been adequately discussed. There are other special departments of medicine and surgery in which it is important that the practitioner should have had instruction as a student; and though it may be established that ophthalmology can be taught without overburdening the curriculum, it is clear that the curriculum may be easily overburdened by the addition of other subjects unless it can be lightened in some other direction. The original intention with which the General Medical Council added a fifth year to the previous curriculum of four years was, that this extra year should be devoted to practical experience in the wards, out-patient rooms, and special departments. The claim so well set out by the ophthalmologists renders still more urgent the consideration of the manner in which the five years in theory and six in practice of the medical curriculum can best be distributed.

INFLUENZA IN INDIA.

THE preliminary report[1] on the influenza epidemic by Major Norman White, I.M.S., Sanitary Commissioner with the Government of India, carries the story down to November 30th, 1918, and it appears that the epidemiological sequence ran parallel with that observed in this country. Sporadic cases of influenza began to be noticed in June (it is noteworthy that some of the earliest cases diagnosed in Bombay occurred on board a transport which reached that port at the end of May) and a widespread non-fatal disease developed throughout India in July and August. In the middle of September the Bombay death-rate began to rise, and the second wave of influenza, which reached its crest in October, caused a havoc to which the Black Death of 1348–49 alone affords a parallel. To obtain a numerical appreciation, Major White has calculated the excess mortality over that of the corresponding period in the previous year, a method which does not overstate the case, because the plague mortality was unusually small in the autumn of 1918. This estimate leads to the conclusion that not fewer than 4,899,725 persons (about 2 per cent. of the whole population) died of influenza or its complications in British India, the vast majority within the space of two months. Making allowance for the native states, not less than six million persons perished in India. The disease, which, at any time within the last ten years, most of us would have regarded as lightly as Sydenham spoke of scarlet fever, in a few weeks destroyed more than half as many human beings as the dreaded bubonic plague killed in twenty-two years.

The explanation suggested for this enormous death roll is that Indians have a low resisting power to pneumonic infection. It is, in fact, not clear that the relative case mortalities from influenzal pneumonia were more unfavourable to the Indians than the ratio normally obtaining; on the contrary, it seems possible that the difference was not so great as usual. Still, it would appear from the military data that the fatality rate for Indian troops was at least three times that found amongst British troops in India, and, in view of the wide dissemination of the materies morbi, this goes a long way to account for the deaths. Another factor was a scarcity of food grains, and especially of fodder, which was responsible for a dearth of milk, both being results of the failure of the monsoon. The extent to which this factor contributed to the mortality is naturally difficult to determine, and the same difficulty exists in interpreting the relation between the European food shortage and our own experience of influenza. No epidemiologist supposes that the origin of the epidemic series was lack of food, but that the world shortage has had something to do with the fatality is not a proposition lightly to be denied.

Major White's observations on the bacteriology of the disease are in accord with European experience, and it remains a moot point whether the earlier failures to isolate Pfeiffer's bacillus and its frequent detection subsequently were due to the use of inappropriate media in the earlier days or really marked a change of type. Work in the Central Research Institute at Kasauli, in which Majors Harvey, Cunningham, and Brown participated, showed that

[1] *The Pioneer Mail*, March 6th.

Pfeiffer's bacillus grew best symbiotically, while Major Greig and Captain Maitra in Karachi found that Pfeiffer's bacillus and the pneumococcus were the only pathogenic organisms constantly met with in fatal cases, an observation also made by Lieut.-Colonel Liston in Bombay. Streptococci, so commonly found in England, were rarely found in India. A mixed vaccine was prepared and issued from the Assam Pasteur Institute, but Major White justly observes, "it must be realized, however, that in the event of a recrudescence of the epidemic, in a form in any way comparable to the last, inoculation would be little likely to confer any appreciable benefit on India as a whole. Epidemics of influenza are as brief as they are severe; they give no timely warning of their coming, and even if we had innumerable doctors ready to start inoculation at the first warning, the epidemic would run its course before we should be able to reach a tithe of the population." This remark has some measure of applicability to home conditions. The evolution of the late secondary wave at home was much more rapid than that of the secondary in the early nineties, perhaps nearly as rapid as in India. The third wave which we have just experienced passed through its phases speedily, and did not attain the height of its forerunner. Major White remarks that the Indian experience afforded evidence of some immunity conferred by a previous attack, and there are English data which point in the same direction, so far at least as the first two waves are concerned. Whether we can count upon this natural immunization to put a period to the disease, or whether a further succession of waves is to be apprehended, are questions we cannot answer.

The history of the last nine months would have given food for thought to the exponent of Hellenic philosophy. We congratulated ourselves, not without cause, upon the relative insignificance of disease on the battle-field and noted the superior destructiveness of human contrivances. We have not had long to wait for the proof that human warfare is but a secondary agent of destruction, and that those who set out to conquer disease have mightier opponents than Ludendorff or Hindenburg, and must face a longer campaign than that of 1914–18.

THE MEDICAL PROFESSION AND NATIONAL SERVICE.

WE announced last week that the functions of the Ministry of National Service in the selection and nomination of medical officers for release from the services would cease as from April 1st. On March 28th the Minister issued the following statement: "As the work of the Ministry of National Service will shortly come to an end, Sir Auckland Geddes desires to express his high appreciation of the services which the medical profession have rendered in connexion with the work of the Ministry during the past two years. Letters of thanks have been sent to the chairmen of the Central Professional Committees in Great Britain, expressing his acknowledgement of the work done by these committees, and by the Local Medical War Committees throughout the country. Without the hearty co-operation of the members of these committees, it would have been a much more difficult task to supply the military forces with the numbers of medical officers necessary, while still maintaining any adequate service for the civilian population. These committees have also given valuable assistance in helping to solve the difficult problems involved in the demobilization of medical officers. Sir Auckland Geddes also wishes to thank very heartily those practitioners who have enabled the work of the National Service Medical Boards to be done so well. The very small proportion of complaints and of sustained appeals which followed the establishment of these boards is an index of the efficient professional work rendered by these medical men. The work has been done in so accurate a fashion as to provide data of the physical condition of the population which will be of the highest value both from the scientific and from the national point of view. The work of the medical profession, both in connexion with the Professional Committees and with the National Service Medical Boards, has been often arduous, and in expressing his thanks on behalf of H.M. Government, Sir Auckland Geddes wishes to assure the members of the medical profession engaged in this work that by their services they have contributed in no small degree to the successful issue of the war." In view of the winding up of the Ministry of National Service, Sir James Galloway has relinquished the duties he has so ably performed as Chief Commissioner of Medical Services; his return to civil practice will advantage Charing Cross Hospital, to which he is senior physician. As already mentioned, it has been positively but not officially stated that Sir Auckland Geddes will accept the offer to become Principal of McGill University, Montreal, in succession to Sir William Peterson, who is laid aside by illness from which his recovery is not to be expected.

THE FOOD PROBLEM.

WE recently alluded to the expression of opinion by the Food (War) Committee of the Royal Society that the present state of knowledge respecting the fundamental problems of human nutrition was altogether unsatisfactory. How unsatisfactory it is can be made plain by a simple example. It is common knowledge that in large classes of the community the purchase of food absorbs at least 50 per cent. of the total outgoings. It is equally well known that the energy needs of persons doing different kinds of work are various. Thus, the Royal Society Committee inferred from the experiments of Becker and Hämäläinen that the needs of a man working as a woodcutter would be precisely double the requirements of the same man working as a tailor. Now it plainly follows that if the man under the two conditions received the same wage and spent the same proportion of it upon food, he would, if adequately nourished as a woodcutter, be transforming energy wastefully as a tailor; or if the diet in his tailoring phase were just adequate, then as a woodcutter he would be living on body capital. But, in the present state of knowledge, these are idle speculations, because, although both incomes and budgets of tailors and woodcutters could be ascertained, we have no right whatever to generalize as to energy needs from the meagre data provided by Becker and Hämäläinen; yet, with the exception of a very small number of older German, and a still smaller number of French observations, they are the only fairly accurate measurements of metabolism during industrial work which have been published. It is obvious, however, that information of this kind is of fundamental importance in all discussions of the conditions requisite for securing an adequate minimum standard of life in this country. We have tried to ascertain what progress has been made in this country during the past year to remedy this deficit of data respecting the energy needs of industrial work. We cannot learn that outside the army and the munitions factories any progress at all has been made. In the army, we understand, a large number of measurements have been made, and these will ultimately be available. In the munitions factories two sets of investigators have been at work, but neither the time nor means at their disposal have sufficed for more than a few hundred experiments upon about seventy persons. It is further to be expected that neither the army nor the munitions factories will much longer employ so large a proportion of the inhabitants of this country as to make results obtained

SPECIAL CLINICAL MEETING, LONDON, 1919.

APRIL 8th, 9th, 10th, and 11th.

NOTIFICATION OF ATTENDANCE.

To be filled up and returned to the HON. GENERAL SECRETARIES, *Special Clinical Meeting, British Medical Association, 429, Strand, W.C.2.*

Medical officers of the Overseas Forces of Canada, Australia, New Zealand, South Africa, and of Dependencies and Colonies are invited to attend the meeting. The date has been fixed in the hope that many of them will still be in this country. The Directors of Medical Services, Home and Overseas, have notified to Commands and Units that special consideration is to be given to applications from medical officers desiring to attend the meeting.

Officers of the Medical Corps of the United States Army are also invited to attend.

Officers of the Medical Service R.N., and of the R.A.M.C., and R.A.F. Medical Branch, are invited to attend, though not members of the Association.

Medical officers of the military forces are invited to make use of this form in notifying their intention to be present if they have not already sent in a similar form.

All Members of the Association also who propose to attend the Meeting are requested to fill up and post this form as soon as possible if they have not already sent in a similar form.

The Room for Registration at the Imperial College of Science, South Kensington, will be opened from 2.30 to 5.30 p.m. on Tuesday and at 9 a.m. on the other days of the meeting. It is hoped that as many as possible of those who are attending the meeting will take the opportunity of registering on Tuesday afternoon as this will greatly facilitate all arrangements.

Offers of Hospitality by St. Thomas's Hospital.—In the event of members of His Majesty's Forces and others attending the Clinical Meeting in London being unable to obtain sleeping accommodation, the Treasurer and Governors of St. Thomas's Hospital have set aside the beds (60) in two vacant wards and will be able to provide breakfast. Early application should be made to the Honorary General Secretaries, Special Clinical Meeting, 429, Strand, W.C.2.

It is my intention to be present at the SPECIAL CLINICAL MEETING in LONDON and

Please write distinctly.

*I expect to be accompanied by*_____

*Name*_____

*Address*_____

I would like to attend the RECEPTION by the PRESIDENT at the GUILDHALL on April 8th.

" " " CONVERSAZIONE given by the ROYAL SOCIETY OF MEDICINE on April 9th.

" " " POPULAR LECTURE, Queen's Hall, Langham Place, W., April 9th, 5 p.m. (Ladies may be invited, and early notice should be given to facilitate seating arrangements.)

For the Reception on April 8th and the Conversazione on April 9th, to which ladies will be admitted, the accommodation is limited, and it may be necessary to ballot for tickets. Please indicate your order of preference and whether you will be accompanied by a lady.

DINNER.

A Dinner, to which ladies may be invited, will be held at the CONNAUGHT ROOMS, GREAT QUEEN STREET, W.C. (near Lincoln's Inn Fields), on THURSDAY, APRIL 10th, at 7.30 p.m. Applications for tickets should be made at once to the Secretaries of the Special Clinical Meeting, British Medical Association, 429, Strand, W.C. 2. The price of the Dinner Ticket, 10s. 6d. each, should be remitted by Postal Order with the application. As the number of Tickets is limited early application should be made.

Please reserve a seat for me at the Dinner, for which I enclose a remittance of 10s. 6d.

*Signature*_____

[*See next page.*

GENERAL ARRANGEMENTS.

THE arrangements for the special clinical and scientific meeting of the British Medical Association to be held in London from April 8th to the 11th have been made by a committee of which Sir T. Clifford Allbutt, K.C.B., F.R.S., President of the British Medical Association, is chairman; it includes the Presidents of the Royal Colleges of Physicians and Surgeons in London; Sir William Osler, Regius Professor of Medicine, Oxford; the Directors-General of the Medical Departments of the Royal Navy, of the Army Medical Service, of the Army Medical Services, France, and of the Canadian Army Medical Service, the Directors of Medical Services of the Australian Imperial Force and of the New Zealand Expeditionary Force, the Deputy Director Medical Services South African overseas forces, the Medical Adviser to the Secretary of State for India, and the D.M.S. Royal Air Force.

LEAVE FOR OFFICERS.

The Director-General, Army Medical Service, has notified the Home Commands that special consideration is to be given to applications by medical officers for leave to attend the meeting. A similar notification has been issued by the Director-General, Medical Services, Overseas Forces of Canada, and by the Directors of Medical Services of the Australian Imperial Force and the New Zealand Expeditionary Force.

ACCOMMODATION.

Hotel accommodation in London is difficult to obtain: many of the large hotels are still occupied by various Government departments, and the others are very full. Private hospitality will be offered by members living in London, but the full extent to which such hospitality will be available has not at present been ascertained. Meanwhile, those who intend to be present at the meeting are advised to secure rooms as early as possible. The offer by St. Thomas's Hospital is mentioned on p. i.

ENTERTAINMENTS.

A reception arranged by the *Metropolitan Counties Branch* of the British Medical Association will be held at the Guildhall, London, kindly lent by the Lord Mayor, on the evening of Tuesday, April 8th, from 8 to 11 o'clock. The guests will be received at 8.30 p.m. by Sir T. Clifford Allbutt, K.C.B., F.R.S., Regius Professor of Physic, University of Cambridge, President of the British Medical Association, and by Dr. M. G. Biggs, President of the Metropolitan Counties Branch.

On Wednesday evening, April 9th, the *Royal Society of Medicine* will hold a reception at its house, 1, Wimpole Street, W.1. The guests will be received by Sir H. D. Rolleston, K.C.B., President of the Society, at 8.30 p.m.

On Thursday, April 10th, a *Dinner* will take place at the Connaught Rooms at 7 for 7.30 p.m. (10s. 6d. without wine).

Ladies may be invited to these entertainments, including the dinner. Academic or evening dress or uniform can be worn at the receptions at the Guildhall and the Royal Society of Medicine. The number of invitations which can be issued is in each case limited, and early application should be made.

The President of the *Royal College of Surgeons of England* will hold a reception at the College, Lincoln's Inn Fields, on Wednesday, April 9th, from 4.30 to 6 p.m., when there will be an exhibition of Hunterian and Listerian relics, etc. Tea will be served at 4.30 p.m.

The President and officers of the *Royal College of Physicians of London* will receive members who would like to see the portraits and books at the College on Thursday, April 10th. Tea will be served at 4.30 p.m., and at 6 p.m. Sir H. D. Rolleston will give a Lumleian Lecture, on cerebro-spinal fever, in the Library.

Stamp.

The SECRETARIES,
Special Clinical Meeting,
British Medical Association,
429, Strand, London, W.C.2.

PROVISIONAL PROGRAMME.

The meetings of the Sections will be held at the Imperial College of Science and Technology, South Kensington, which has been placed at the disposal of the Association by the Rector, Sir Alfred Keogh, G.C.B., M.D.

Any modifications in the arrangements which may be found necessary will be shown by notices suspended in the Registration Room in the College.

SECTION OF MEDICINE.

DISCUSSIONS will be held as follows:

Wednesday, April 9th.—10 a.m. to 1 p.m.

War Neuroses.—Chairman: Sir DAVID FERRIER, M.D., F.R.S. Introducer: Lieut.-Colonel F. W. MOTT, F.R.S., R.A.M.C.

Thursday, April 10th.—10 a.m. to 1 p.m.

Influenza.—(In conjunction with the Section of Preventive Medicine and Pathology.) Chairman: Colonel HAVEN EMERSON, Medical Corps, U.S.A. The subject will be treated under the following headings:

1. Clinical Aspects. Introduced by Major-General Sir WILMOT HERRINGHAM, C.B., A.M.S.
   (*a*) Short account of epidemics of 1918 in France. Contrast between clinical features of spring and autumn epidemics—for example, respiratory complications.
   (*b*) Epidemic in England. Contrasts and resemblances to above.
2. Epidemiology. Introduced by Captain M. GREENWOOD, R.A.M.C.
3. Etiology. Introduced by Major F. B. BOWMAN, C.A.M.C.

N.B.—The pathological aspects will be treated by means of demonstrations.

Friday, April 11th.—10 a.m. to 11.30 a.m.

Venereal Disease.—Chairman: Sir WILLIAM OSLER, Bt. The subject will be introduced by Brevet Colonel L. W. HARRISON, D.S.O., K.H.P., Lecturer in Venereal Diseases, Military Hospital, Rochester Row. A discussion will follow.

11.30 a.m. to 1 p.m.

Prognosis in Cardio-vascular Affections.—Chairman: Sir JAMES MACKENZIE, M.D., F.R.S. Introducer: Dr. THOMAS LEWIS, F.R.S. A discussion will follow.

DEMONSTRATIONS.

The following demonstrations have been arranged to begin at 2.30 p.m. on each day:

Wednesday, April 9th.

Neurological Cases. National Hospital for Paralysed and Epileptic, Queen Square.

Diseases of the Chest. Brompton Hospital.

Mine Gas Poisoning: Demonstration of Rescue Apparatus and Organization. Lieut.-Colonel D. Dale Logan, D.S.O., R.A.M.C. At St. Thomas's Hospital.

Thursday, April 10th.

Newer Methods in Cardio-diagnosis. National Heart Hospital, Westmoreland Street, Marylebone.

Cases and Specimens illustrating Cardio-vascular Disease. Dr. Thomas Lewis, F.R.S. At University College Hospital.

Lantern Demonstration of Coloured Drawings of Throat in various Acute Infectious Diseases. Dr. H. Drinkwater. At St. Thomas's Hospital.

Friday, April 11th.

Air Force Tests at Royal Society of Medicine.

War Neuroses. Lieut.-Colonel F. W. Mott, F.R.S., Maudsley Clearing Hospital, Denmark Hill. A discussion will follow.

Interesting cases by members of the staff of the Hospital for Sick Children, Great Ormond Street.

Venereal Disease.—On each day there will be a demonstration at the Military Hospital, Rochester Row, by Colonel L. W. Harrison, D.S.O. The demonstration will be in three parts, each lasting half an hour. Visitors are requested to attend the parts in the order specified on the slips which will be handed to them at the door.

A. *Syphilis:*
1. Examination of patients.
2. Spirochaete specimens under dark-ground illuminations.
3. Apparatus for the administration of antisyphilitic remedies.

B. *Prevention of Venereal Disease—Gonorrhoea:*
1. Early Treatment.
2. Abortive Treatment.
3. Irrigation.
4. Instruments for the diagnosis and treatment of chronic gonorrhoea.
5. Cases of interest.

C. *Laboratory:*
Microscopical specimens.
Complement fixation in Gonococcal Infections.
" " " Syphilis.
Gonococcal Vaccines.

Secretaries of Section.—Colonel R. J. MILLARD, C.M.G., D.D.M.S., A.A.M.C., 429, Strand, W.C.2, and Dr. H. BATTY SHAW, 122, Harley Street, W.1.

SECTION OF SURGERY.

Discussions on the following subjects have been arranged to take place in the morning of the day indicated.

Wednesday, April 9th.

Gunshot Wounds of the Chest.—Chairman: Sir GEORGE MAKINS, G.C.M.G. Introducers: Colonel T. R. ELLIOTT, D.S.O., F.R.S., and Colonel G. E. GASK, C.M.G., D.S.O.

Thursday, April 10th.

Wound Shock.—Chairman: Sir ANTHONY BOWLBY, K.C.M.G. Introducers: Professor W. M. BAYLISS, F.R.S., and Dr. H. H. DALE, F.R.S.

Friday, April 11th.

A Review of Reconstructive Surgery.—Chairman: Sir ROBERT JONES, C.B. Introduced by Major R. C. ELMSLIE and Major W. R. BRISTOW, R.A.M.C.

DEMONSTRATIONS.

Wednesday, April 9th.

2.30 p.m.—On Orthopaedic Methods, etc.; at the Special Surgical Hospital, Shepherd's Bush.

2.30 p.m.—At the Royal College of Surgeons, Colonel J. G. Adami, F.R.S., C.A.M.C., for Major Rhea, C.A.M.C.: Bone Inflammation and Bone Repair.

3.30 p.m.—At the Royal College of Surgeons, Specimens illustrating Wounds of Arteries, by Sir George Makins

4.30 p.m.—Reception at the Royal College of Surgeons—Hunterian and Listerian Relics.

Thursday, April 10th.

2.15 p.m.—Cases of Plastic Surgery of the Face, by the staff of the Queen's Hospital, Sidcup; at the Imperial College of Science, South Kensington.

3.15 p.m.—Cinematograph Lecture illustrating the Organization of a Hospital for Limbless Cases, by Colonel Sir John Lynn-Thomas, K.B.E., A.M.S.; at the Imperial College of Science, South Kensington.

4 p.m.—Cinematograph Lecture on the Treatment of Fractured Femur, by Major Pearson, S.A.M.C.; at the Imperial College of Science.

3.30 to 4.30 p.m.—Professor Arthur Keith, F.R.S.: Specimens illustrating Fractures of the Skull; at the Royal College of Surgeons.

Friday, April 11th.

2.30 p.m.—On Orthopaedic Methods, etc.; at the Special Surgical Hospital, Shepherd's Bush.

2.30 p.m.—Material at the Army Medical War Museum, 5, Avenue Studios, 76, Fulham Road, S.W.1, by Lieut.-Colonel F. S. Brereton, R.A.M.C.

2.30 p.m.—Colonel W. T. Lister, C.M.G.: Demonstration of Specimens illustrating War Injuries of the Eye; at the Royal College of Surgeons.

3.30 p.m.—Lieut. Colonel A. D. Reid, C.M.G.: *X*-ray Apparatus. At the War Office *X*-ray Laboratory, Hortensia Road, Fulham Road, S.W.

3.30 to 4.30 p.m.—Mr. C. Wallace, C.B.: Specimens illustrating Gunshot Wounds of the Abdomen; at the Royal College of Surgeons.

Secretaries of Section.—Mr. C. H. S. FRANKAU, D.S.O., F.R.C.S., 57A, Wimpole Street, W.1; Mr. C. MAX PAGE, D.S.O., F.R.C.S., 134, Harley Street, W.1.

SECTION OF PREVENTIVE MEDICINE AND PATHOLOGY.

Discussions have been arranged for the morning meetings on the following subjects:

Wednesday, April 9th.—10 a.m. to 1 p.m.

The Dysenteries: Bacillary and Amoebic.—Chairman: Colonel S. L. CUMMINS, C.M.G., A.M.S. Introducers: Colonel L. S. DUDGEON, C.M.G., A.M.S., and Professor W. YORKE.

Thursday, April 10th.—10 a.m. to 1 p.m.

Influenza. — (At a joint meeting with the Section of Medicine, *q.v.*)

Friday, April 11th.—10 a.m to 12 (noon).

Malaria.—Chairman: Sir RONALD ROSS, K.C.B., F.R.S. Introduced by Lieut.-Colonel S. P. JAMES, I.M.S. A Demonstration on malaria and an exhibition of specimens, arranged by Sir Ronald Ross.

12 noon to 1 p.m.

A communication will be made on a "Filter-passing" Virus in Certain Diseases, with especial reference to Polyneuritis, Encephalitis, Trench Fever, Influenza, and Nephritis, by Major-General Sir JOHN ROSE BRADFORD, K.C.M.G., C.B., F.R.S., A.M.S., Captain E. F. BASHFORD, R.A.M.C., and Captain J. A. WILSON, R.A.M.C.

DEMONSTRATIONS.

Demonstrations have been arranged to take place in the afternoon, beginning at 2.30.

Wednesday, April 9th.—On Malaria. At the London School of Tropical Medicine. 3 p.m., Morbid Anatomy and Histology of Influenza, by Major S. W. Patterson, R.A.M.C.; at Lister Institute of Preventive Medicine, Chelsea Gardens.

Thursday, April 10th.—On the Pathology of Dysentery, by Colonel L. S. Dudgeon. Entamoebae, by Professor W. Yorke and Dr. F. W. O'Connor. The Local and Remote Effects of Injections of Quinine on Tissues, by Colonel L. S. Dudgeon. All at St. Thomas's Hospital, Albert Embankment.

Friday, April 11th.—On the Anaërobic Bacteria which Infect Wounds, together with an Exhibition of Specimens and Drawings illustrating Anaërobic Bacteria, by Miss Muriel Robertson. On the subject of Filter passing Viruses in Influenza and other Diseases, by Major-General Sir John Rose Bradford, K.C.M.G., C.B., F.R.S., A.M.S., Captain E. F. Bashford, R.A.M.C., and Captain J. A. Wilson, R.A.M.C. On Rickettsia Bodies, by Dr. J. A. Arkwright and Mr. A. Bacot. All at the Lister Institute of Preventive Medicine, Chelsea Gardens.

Secretaries of Section.—Dr. J. A. ARKWRIGHT, Lister Institute of Preventive Medicine, Chelsea Gardens, S.W.1; Major A. M. W. ELLIS, C.A.M.C., 429, Strand, W.C.2.

POPULAR LECTURE.

A popular lecture, on A Casualty Clearing Station at Work, will be given by Major-General Cuthbert Wallace, C.B., C.M.G., Surgeon to St. Thomas's Hospital, at the Queen's Hall, Langham Place, W., on April 9th, at 5 p.m.; the chair will be taken by Sir John Goodwin, K.C.B., Director-General Army Medical Service. Ladies are invited to be present; and, in order that seating accommodation may be arranged, it is asked that the Registration Office may be notified whether a ticket will be required, or more than one.

EXHIBITION.

An exhibition of surgical instruments, hospital furniture, drugs, foods, sanitary appliances, etc., will be held in the Physics Examination Hall, Imperial College of Science and Technology, South Kensington, from Wednesday, April 9th, to Friday, April 11th, both days inclusive. Information as to space, which is being rapidly allotted, can be obtained from Mr. W. E. Warne, Acting Financial Secretary and Business Manager, 429, Strand, W.C.2.

THE WAR COLLECTION AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The collection of pathological specimens from the seat of war in France will be on view daily from 10 till 6 (on Saturday 10 till 1) at the Royal College of Surgeons, Lincoln's Inn Fields, W.C.2. It comprises a large and complete series of gunshot fractures of the bones; and another series, equally complete, of gunshot injuries of the different organs and soft structures, as well as specimens of disease incident to warfare, the effects of gassing, trench nephritis, gas gangrene, etc.

Special demonstrations, each occupying about one hour, will be given at the College on each day, as notified under the Section of Surgery.

COTTAGE HOSPITALS.

There will be an exhibition at the Imperial College of Science of plans of Cottage Hospitals, kindly lent to the Association by architects. It is also hoped to exhibit plans and photographs of two military hutted hospitals.

Arrangements have been made with Messrs. Callard, Stewart, and Co., for luncheons and teas to be served in the corridor on the second floor of the Imperial College of Science and Technology. Luncheon will be served from 1 to 3 p.m.

GENERAL SECRETARIES.

The General Secretaries of the meeting are:

Mr. CUTHBERT WALLACE, C.B., C.M.G., F.R.C.S., 26, Upper Wimpole Street, W.1.

Dr. GORDON HOLMES, C.M.G., 101, Harley Street, W.1.

Mr. S. MAYNARD SMITH, C.B., F.R.C.S., 28, Wimpole Street, W.1.

The Chairman of the Programme Subcommittee is Colonel J. G. ADAMI, F.R.S., C.A.M.C., Pembroke House, 133, Oxford Street, W.1.

Communications regarding accommodation, entertainments, etc., should be addressed to the "General Secretaries of the Special Clinical Meeting," British Medical Association (Room 46A), 429, Strand, W.C.2.

in them of general interest. Consequently, unless steps are taken to place the comprehensive study of animal nutrition upon a permanent footing, a future crisis will find the scientific men of the period still endeavouring to make calculations upon the data of a handful of experiments carried out under special conditions. We are under no illusions as to the difficulties to be surmounted in making a permanent provision. The bulk of the work which has to be done is not very attractive, and offers little opportunity for striking personal successes. It must cost a great deal of money, and the man in the street will not be dazzled by spectacular achievements which persuade him that he is really getting value for his money. At the present time, and perhaps for, at most, a few months longer, the memory of past privations, and the description of privations still being endured in other countries, may be sufficient to convince the public that the food problem is an important problem; but the public memory in affairs of this kind is extremely short, and "calories" cannot be much more than a nine days' wonder. We do not know whether depressing reflections such as these have influenced those who were understood to be maturing a scheme of State organization. But it is at least clear that if the matter rests where it is much longer, what little public interest in the subject still exists will have evaporated and the difficulty of getting anything effective done will have become an impossibility. We are glad to find, therefore, that Professor Starling, in a public address last week on food in relation to health, insisted on the need for a Board of Human and Animal Nutrition.

THE SURVIVAL OF TRANSFUSED CORPUSCLES IN THE CIRCULATION.

THE beneficial results of blood transfusion are beyond dispute, but whether they are due merely to the increase of blood volume, to the stimulation of the blood-forming organs by the disintegration of introduced corpuscles, or to some other factor, is still a matter for debate and inquiry. One great difficulty that confronts us is the want of a trustworthy method of estimating the duration of life of corpuscles, native and introduced, in the circulation. The older attempts at partial solution of the problem by the injection of nucleated corpuscles into mammals did not give much information, for, being foreign proteins, they were soon removed. Later experiments by the production of plethora, by intraperitoneal injection of corpuscles, or by the transfusion of blood into previously bled animals, showed that a normal blood count was obtained in from two to four weeks; but such results are not to be relied on, because they take no account of the total blood volume or the probable disturbances produced in the blood-controlling and blood-forming apparatus. Nor is there much to be looked for from the study of stained corpuscles used in injection. An ingenious and simple method of determining the duration of transfused corpuscles has been devised by Winifred Ashby.[1] It depends upon the blood agglutination by group serums. All bloods are capable of being classified in one or other of four groups. In Group I the patient's red cells are agglutinated by the serums of any of the other three groups, but his serum does not agglutinate the cells of any other group; the serum of Group II agglutinates the cells of Group III and vice versa; in Group IV the cells are not agglutinated by any other group serums, whilst the serum of this group agglutinates the cells of all the other groups. Hence blood from a Group IV donor may be given to any recipient, no matter what the classification of his blood may be, because the introduced corpuscles will not be agglutinated, whereas the recipient's corpuscles will be protected from agglutination owing to the very small amount of donor's serum introduced. Now, in the ordinary method of agglutinating by group serums, we can obtain practically complete agglutination by a suitable adjustment of the corpuscles and serum. There will be a very small percentage of corpuscles remaining unagglutinated between clumps, but this can be determined with sufficient accuracy in each case. If known quantities of an agglutinable and non-agglutinable blood be mixed in a test tube, we can separate them into their respective proportions by using an appropriate agglutinating serum; one will be represented by the number of agglutinated corpuscles *plus* the previously ascertained percentage of unclumped corpuscles, and the other will be represented by the remainder. Applying this to the case of transfusion, we have a means of separating the donor's and the recipient's own corpuscles in the circulation, and of estimating their respective proportions from time to time, provided, of course, that they belong to different blood groups. Thus, before transfusion of a patient belonging to an agglutinable group an initial count was made, using the appropriate agglutinating serum as diluting fluid in the pipette, and the number of unagglutinated cells was determined. Then at intervals after the transfusion of inagglutinable blood (Group IV) similar counts were made, and the very large increase of unagglutinated corpuscles was observed. The number of these present is an index of the amount of transfused blood in the recipient's circulation. If the patient was transfused with blood from his own group no increase nor decrease in the number of unagglutinated corpuscles was found, so that the idea of a non-specific reaction to foreign blood can be eliminated. It was found by such experiments that the corpuscles of transfused blood remained in the circulation for more than thirty days, and all the while they appeared to be in good condition—a point which does not favour the theory that it is the breaking down of these that stimulates the bone marrow; it rather supports the conclusion that the effect on the bone marrow cells is due to the improved metabolic conditions brought about by the larger number of corpuscles in the blood.

[1] *Journ. of Exp. Med.*, March, 1919.

FIRST AID FOR TROPICAL RESIDENTS.

PRINCESS CHRISTIAN presided at a meeting on March 27th to inaugurate a course of lectures for the public on tropical ailments and their prevention, including first aid, which has been arranged at the College of Ambulance, Vere Street, London, by the principal, Sir James Cantlie. The course is especially intended for those about to reside in the tropics, and the support of city bankers and firms which have connexions in tropical countries has been enlisted. Sir James Cantlie, at the opening of the proceedings, said that Princess Christian was the mother of ambulance in this country. Her Royal Highness said that she was proud to have held for many years the position of honorary president of the Liverpool School of Tropical Medicine, in the work of which she took the deepest interest. The College of Ambulance was founded four and a half years ago as a technical school of instruction in all branches of ambulance work, and to the date of the armistice, the attendance had been 45,000. In order to establish a memorial to the work done during the great war by members of the St. John Ambulance Association, the council was appealing for a sum of money with which to secure a suitable site and building for the college. She trusted the college would continue to flourish in all its departments of usefulness, especially in the branch of work now about to begin. Sir Patrick Manson, G.C.M.G., followed with a brief address, in which he said that the proposal to found a special system of education in this subject for the non-medical public was a somewhat bold adventure, but a little knowledge used with wisdom could be made very valuable. The climate of the tropics was said to be dangerous, but climate itself did not cause disease: it could be no more than a favouring factor when disease germs and their carriers were present. Sir Patrick went

on to state, in familiar terms, the elements of hygienic precaution and the methods of the spread of disease, with a word on intermediate hosts. Sir John Goodwin, K.C.B., D.G., A.M.S., said that the scheme was important for those about to live in the tropics, where the sound elementary knowledge which was to be given at the college would prove most practically helpful. He quoted the vastly improved figures as to mortality from enteric and other campaign diseases in the war as instancing the progress which had been made in research and its application. Colonel Badeley, Colonel Andrew Balfour, C.B., and representatives of city firms with Indian and eastern branches also briefly addressed the meeting; and Sir Rickman Godlee, after outlining the object and scope of the lectures, expressed the thanks of the college authorities to Her Royal Highness.

NURSES' REGISTRATION BILLS.

ON March 28th, as will be seen from our Parliamentary Notes this week, the House of Commons gave a very favourable reception to the Nurses' Registration Bill introduced by Major Barnett; it was read a second time and referred to a Standing Committee. The bill has been drawn up by the Central Committee for the State Registration of Nurses, representing a number of nursing organizations, together with the British Medical Association. Briefly stated, it proposes the establishment of a General Nursing Council for the training and registration of nurses; its provisions are summarized by our parliamentary correspondent. After many expressions of goodwill on the part of private members of various political parties, including Sir Watson Cheyne and Sir Robert Woods, the Parliamentary Secretary to the Local Government Board, Major Astor, announced that the Government was generally in favour of the principles embodied in the bill. He reminded the House, however, that another bill, which had not been so fortunate in the private members' ballot, was in existence. His reference was to the bill promoted by the College of Nursing, Ltd. That body has lately issued a leaflet criticizing in principle and in detail the bill of the Central Committee, and seeking support for its own measure. "The scope of the Central Committee's bill," it says, "is limited to securing for the nurse the right to call herself a registered nurse, and to have her name on a state register. The College also aims at state registration, with uniformity of standard and the one portal system, but only as an instalment of its wider programme for the betterment of nursing conditions, social, professional, and economic, included in its memorandum of association." The College of Nursing claims that its own bill deals with essentials only and leaves details to be settled by the Privy Council, and that the representation it proposes for a general nursing council is more satisfactory; the financial basis of the Central Committee's bill is also deemed to be inadequate. It is to be hoped that means will be found to reconcile the differences between the rival parties in the nursing world. The difficulty, we have heard, is as much due to conflict of personality as to conflict of principle. Major Astor indicated that the points in the College of Nursing bill would no doubt be considered when the Central Committee's bill came before the Standing Committee, and he added that the shape in which the measure returned to the House would determine the Government's attitude towards it. This must, we think, be taken as a plain hint as to the need for a working compromise.

COURSES FOR MEDICAL GRADUATES AT BRISTOL.

THE University of Bristol has arranged a course of clinical demonstrations for medical practitioners. The demonstrations will be given from 2.30 to 3.30 p.m. at the Royal Infirmary and General Hospital, Bristol, alternately, on Thursdays during May, June, July, October, November, and December, 1919. Each will be given by a team composed of a physician, a surgeon, a pathologist or specialist, and any others who have co-operated in the diagnosis and treatment of the case. Attendants on the course will have the further advantage of admission for medical instruction for one month to any or all departments of the clinical institutions included in the university. The fee for the course and clinical work is three guineas. The first demonstration will be given at the Bristol Royal Infirmary on May 1st, on encephalitis lethargica, and the second on May 8th at the General Hospital, on dermatoses of the face. The other demonstrations in May will be on the diagnosis and treatment of vague abdominal pain, on chronic constipation, and on locomotor ataxia. For the benefit of those able to devote several hours each day to hospital practice the appointment of clinical assistant for a period of one or more months will be open; the same person may act in more than one department and will be entitled to the use of the clinical laboratories and the medical library, and to attend all departments, including operations, post-graduate and ordinary clinical demonstrations, and *post-mortem* examinations. The fee is three guineas a month. All inquiries should be addressed to the Director of Post-Graduate Studies (Clinical Section), Pathological Department, University of Bristol.

A RESEARCH SCHOLARSHIP FOR MEDICAL WOMEN.

MISS MAUD MARGARET GIBSON has placed in the hands of the Royal Society of Medicine a sum of money sufficient to provide a scholarship of the yearly value of about £250, in memory of her father, the late Mr. William Gibson of Melbourne, Australia. The Scholarship will be awarded from time to time to qualified medical women who are subjects of the British Empire; it is tenable for a period of two years, but may in special circumstances be extended to a third year. In choosing a Scholar, the society will be guided in its choice "either by research work already done by her, or by research work which she contemplates. The Scholar shall be free to travel at her own will for the purpose of the research she has undertaken." There is no competitive examination, nor need a thesis or other work for publication or otherwise be submitted. The society has power at any time to terminate the grant if it has reason to be dissatisfied with the work or the conduct of the Scholar. Applications, with a schedule of the proposed research and accompanied by a statement of professional training and appointments, and by testimonials, one as to academical or professional status and one as to general character, should reach Mr. J. Y. W. MacAlister, Secretary, Royal Society of Medicine, 1, Wimpole Street, W.1, not later than May 3rd, 1919.

STREATFEILD RESEARCH SCHOLARSHIP.

IN accordance with the trust founded by Mrs. Eliza Streatfeild for the promotion of research in medicine and surgery, a committee of the Royal College of Physicians of London and of the Royal College of Surgeons of England is proceeding to appoint a Streatfeild research scholar. The emolument will probably be £250 per annum, and the tenure of the scholarship three years at the discretion of the committee. Applications, which should state the nature of the proposed research, the place where it will be carried out, and the status of the applicant, should be addressed to the Registrar, Royal College of Physicians, Pall Mall East, S.W.1, and marked "Streatfeild Scholarship."

NEWS has been received from South Australia of the death of Sir Edward Charles Stirling, C.M.G., M.D., F.R.S., Professor of Physiology in the University of Adelaide, and Director of the South Australian Museum, whose contributions to the anthropology and zoology of Australia are well known to all interested in those sciences. He was President of the South Australian Branch of the British Medical Association in 1889.

WE regret to learn of the death, on April 2nd, of Sir James Mackenzie Davidson, M.B., C.M., who did so much to place the use of the *x* rays on a sound basis.

WE regret to record the death, at the age of 68, of Dr. William Allen Sturge. After his retirement from practice he gave himself to the study of prehistoric man, and formed a fine collection of stone and bronze weapons. We hope to publish an account of his life in an early issue.

MEDICAL officers and members of the Association attending the Special Clinical Meeting in London are informed that the room for registration at the Imperial College of Science, South Kensington, where any information required will be obtainable, will be open from 2.30 to 5.30 p.m. on Tuesday, April 8th, and again at 9 a.m. on Wednesday, April 9th. It is hoped that as many as possible will take the opportunity of registering on Tuesday afternoon, as this will facilitate all the arrangements. Cards of invitation to the reception arranged by the Metropolitan Counties Branch, to be given on Tuesday evening (8 p.m.) at the Guildhall of the City of London, lent by the Lord Mayor, will be available in the registration room for those who have not previously received an invitation.

Medical Notes in Parliament.

Ministry of Health Bill.

APPLICATION TO IRELAND.

THE consideration of the Ministry of Health Bill was concluded in Standing Committee on March 27th, when Sir Archibald Williamson presided. The Attorney-General for Ireland (Mr. Arthur Samuels) submitted, in substitution for one previously on the Order Paper, the following new clause to apply the bill to Ireland:

1. For the purpose of promoting the health of the people in Ireland and exercising the powers conferred on him by this Act the Chief Secretary shall be the Minister of Health for Ireland, and it shall be his duty as such Minister to take all such steps as may be desirable to secure the effective carrying out and co-ordination of measures conducive to health, including measures for the prevention and cure of diseases, the treatment of physical and mental defects, the initiation and direction of research, the collection, preparation, and publication of information and statistics relating thereto, and the training of persons for health services.

2. The provisions of this Act with respect to consultative councils shall apply to Ireland with the substitution therein of the Lord Lieutenant for His Majesty, and with the addition of the following provision:

For the purpose of giving advice and assistance and making proposals to the Chief Secretary in connexion with his powers and duties under this Act a council shall be established (which shall be called the Irish Public Health Council) consisting of the following persons:

(*a*) The Vice-President and the two other Commissioners of the Local Government Board for Ireland;
(*b*) The chairman and such two others of the Irish Insurance Commissioners as may be nominated by the Chief Secretary;
(*c*) The Registrar-General of Births, Deaths, and Marriages in Ireland;
(*d*) A registered medical practitioner, who shall act as chairman of the Council under the direction of the Chief Secretary, and three other registered medical practitioners, one of whom shall be a woman, and one of whom shall be a medical practitioner who is registered on the *Medical Register* in respect of a diploma in sanitary science, public health, or State medicine;
(*e*) Six other persons having practical experience of matters relating or incidental to or affecting the health of the people.

3. The Chief Secretary shall from time to time nominate the persons who are to be members of the Irish Public Health Council.

4. The expenses of the Chief Secretary and of the Irish Public Health Council under this Act, including such reasonable compensation to members of that Council for loss of remunerative time, shall be paid in like manner as the expenses of the Ministry.

5. Save as aforesaid, or as otherwise expressly provided in this Act, the foregoing provisions of this Act shall not apply to Ireland.

Mr. Samuels said that the intention was to have as chairman of the council under the direction of the Chief Secretary a registered practitioner who would devote himself exclusively to the work, and be convener of the council. It was intended that he should be paid a salary, or remunerated in some adequate way. There would be six representatives in addition to the four medical members, so that there would be ten non-official members. It would be open for women to be members. The desire was to make this Health Council thoroughly effective in bringing about a real reform in public health in Ireland.

Captain Craig said it had been suggested at the conference of Unionist members that while the Chief Secretary should be Health Minister for Ireland, some other individual should be appointed to give his whole time to the subject, and that he should be called the Irish Health Commissioner, and be the real health authority for Ireland, with advice from the Council. It should be stated plainly that there should be an official to do all the health work to be done in the name of the Chief Secretary.

Sir Robert Woods said that what the Irish members had been most anxious for, and what they had succeeded in obtaining, was to ensure that the health service for Ireland, instead of being relegated to an already overworked department, should be placed under one central authority. The proposal would serve as a beginning—a peg on which to hang proper and efficient administration of health matters in Ireland.

Sir William Whitla reminded the Committee that in the English bill had been inserted the provision that amongst the other duties of the Ministry should be the initiation and direction of research work. He hoped that the same definite statement would be made in the Irish clause.

Mr. Devlin said he would have preferred that a Health bill for Ireland should have been drafted in consultation with Irish medical opinion, and in consultation, too, with the formed opinion of all sorts in that country, but he understood that the present clause was the result of the joint wisdom of the council of ten Unionist members, and he noted that it included practically all the amendments that he had proposed.

THE INTENTIONS OF THE MINISTRY.

Mr. Locker-Lampson then submitted the first of several proposed new clauses as to matters to be taken up by the Ministry. The first proposed that the Minister should have power to set up a standard for different grades of milk and to make regulations for its delivery in sealed bottles. Dr. Addison asked leave to make a general statement as to the intentions of the Ministry. It was thought desirable that legislative matters relating to the alteration of existing local health services or local administrative bodies should be kept apart from the bill because it was proposed as the next stage in the development of health policy to submit to Parliament proposals of a very far-reaching character relating to these matters. If, for example, the question of tuberculosis was to be dealt with, the proposal should deal with tuberculosis as a whole as far as possible. For that reason he submitted that the new clause in regard to the distribution of milk was not appropriate to the bill. It was clear that other departments, such as the Ministry of Food and the Board of Agriculture, were concerned. It was necessary to disentangle the medley of powers in respect of milk. His remarks were designed to apply to all the proposed new clauses, as, for example, those relating to the Poor Law and voluntary hospitals.

Sir Ryland Adkins said that the County Councils Association was of opinion that these matters should not be dealt with in connexion with this bill.

Lieut.-Colonel Raw said the country would be disappointed if Parliament did not deal with such questions as the milk supply, the separation of the Poor Law from voluntary hospitals, the subsidizing of voluntary hospitals, and the placing of the whole hospital system on a uniform and more democratic basis, but he would willingly withdraw the amendments with which he was concerned if the Ministry gave an assurance that these urgent questions would be dealt with at the very earliest possible moment.

Mr. Locker-Lampson then withdrew his amendment.

DISTRIBUTION OF GRANTS TO LOCAL AUTHORITIES.

Mr. Locker-Lampson then moved the following new clause:

If any local authorities do not within a reasonable time avail themselves of moneys or means, or any portion of them placed at their disposal by or through the Minister, the Minister may distribute or utilize such moneys or means, or any portion of them, as he may think fit.

He said that in the Housing Bill Dr. Addison was taking power, if the local authority did not carry out a scheme, to take the scheme out of its hands and charge it with the expense of completing it. The present proposal was on the same lines. The Local Government Board, in its recent annual report, admitted that there were several local authorities which had not made arrangements for nursing assistance in severe cases of measles, although that disease had been compulsorily notifiable since January 1st, 1916. It was also shown in connexion with the outbreak of small-pox in London in March, 1918, that the Local Government Board had to write to certain sanitary authorities requesting them to exercise their powers under the regulations. Again, on the subject of maternity and child welfare, the report showed that

Camberwell and Gateshead, where there was a heavy infantile mortality, were for a long time uninterested, while Hampstead and Peterborough had made no provision whatever. The clause simply said that if the local authorities refused to make use of grants within a reasonable time, the Minister should have power to carry out the scheme himself, and charge the local authorities with them.

Dr. Addison sympathized with the proposal, but said that the proper way of dealing with the matter would be in the way in which it was dealt with in the Housing Bill. He could not, however, venture to suggest that he should have quite such freedom of action as the new clause would confer upon him. The clause would practically give the Minister power to do what he liked with the money the local authorities did not spend. He was not sanguine enough to think that either Parliament or the Treasury would sanction that course, but he would, if the amendment were not pressed, see what could be done.

After further discussion the amendment was formally negatived.

NATIONAL HOSPITALS.

Mr. T. Griffiths (Labour, Pontypool) moved the following new clause, for which he said the Labour party was responsible:

It shall be the duty of the Minister to establish a system of national hospitals and other institutions for the treatment of the sick and disabled, including the nationalization of such existing institutions dependent upon voluntary contributions for their maintenance.

He said that the Committee would appreciate the splendid work performed by institutions and hospitals through the aid of voluntary subscriptions and the services rendered by the medical profession. He considered it very unsatisfactory that the injured and stricken should be dependent on voluntary aid for their restoration to health.

The Chairman said that the proposal would involve a charge on public funds and the clause therefore was out of order.

SCHEDULE 1.

On the motion of Sir Philip Magnus, the first schedule to the bill, which enumerated certain out-of-the-way matters as transferable from the Ministry to other departments, was left out.

End of Proceedings in Committee.

At the close of the proceedings Major Astor, in the absence of Dr. Addison owing to indisposition, thanked the Committee, on behalf of the Minister and himself, for getting this measure through in record time.

Nurses' Registration Bill.

Major Barnett, on March 28th, by good fortune of private members' ballot, moved the second reading of the Nurses' Registration Bill. He recalled that in 1905 a Select Committee of the House of Commons reported in favour of the State registration of nurses, that in 1908 a bill similar to that now presented was passed through the House of Lords without division, and that in 1914 the House of Commons gave a similar bill a first reading by a majority of 228. The intervention of the war prevented private members from getting facilities to carry the measure further. At present there was State registration in South Africa, in four provinces of Canada, in Queensland, and in the Bombay Presidency. The principle was in force in forty-six of the United States of America. It had also been adopted in Belgium. The central committee of various bodies which was responsible for drawing up the present bill came into existence in 1910. It represented by delegation the British Medical Association, the Royal Nurses' Association (under royal charter), the Matrons' Council of Great Britain and Ireland, the Society for the State Registration of Trained Nurses, the National Union of Trained Nurses, the Fever Nurses' Association, the Scottish Nurses' Association, and the Irish Nursing Board.

The bill proposed to establish a general Nurses' Council, to consist of: (1) Crown representatives, appointed by the Privy Council; (2) a certain number of medical practitioners nominated by the Local Government Board (hereafter by the Minister of Health); (3) certain medical practitioners (nominated by the British Medical Association); (4) persons elected by registered trained nurses, and consisting partly of matrons and partly of trained nurses; (5) representatives of the nurses' training schools; and (6) of the lay element, which should not be dominant. The General Council could not be created at once because it depended on the electorate, which could only be created through the Register. Hence it was intended to have a provisional council, to hold office for two years, and in that time to draw up rules and regulations which would not have effect until approved by the Privy Council. There was provision for setting up divisional boards for England, Scotland, Wales, and Ireland. These boards would hold examinations under the curriculum established by the General Nursing Council, and would inquire into the character and status of all applicants for registration. For those already in the occupation there would be a period of grace of three years during which they could claim registration. Persons holding certificates from the Admiralty or from the Army Council would be entitled to registration. The bill contained provisions for the registration of persons holding certificates from the Local Government Boards of Scotland and Ireland, and to ease the admission of those who had followed for at least three years the bona fide practice of a nurse. Registration would not be compulsory, but no man or woman would be able to describe himself or herself as a registered nurse unless registered. The effect of the scheme would be that the qualification would be somewhat stiffened up after the three years. There would be supplementary registers of male nurses and of mental nurses, classes which had a different training. It was estimated that there were at the present time in the United Kingdom 80,000 practising nurses, and that 50,000 would register in the first year at a fee which it was suggested should be two guineas. The sum of 100,000 guineas invested would give 5,000 guineas of income with safety. This, with the new fees coming in and with the examination fees, which it was suggested should be from one to three guineas, would be sufficient to carry out all the purposes of the Act.

Mr. Briant, in seconding, said that from his experience in London work he was more and more convinced that the step proposed was right. The Ministry of Health would never carry out its functions as efficiently as it desired to do unless it had a far larger supply of nurses in the future, and these nurses needed to have a definite status.

Sir Donald MacLean supported the measure as an almost necessary complement to the Ministry of Health Bill. He thought it should be taken up by the Government.

Major Molson, as a medical man, supported the bill, holding that it should be passed even more in the interests of the public than in the interests of the nurses. He had served in the war in the East, and found that one of the greatest difficulties in the hospitals in India was that there were so few nurses. The whole of the medical profession was in favour of securing a good nursing standard.

Mr. Lyle also supported the bill, though holding that certain matters, as for instance the proportionate representation on the Council, would need to be carefully considered in Committee.

Lieut.-Colonel Raw gave similar support to the measure, and Mr. F. Roberts joined on behalf of the Labour party in the note of approval.

Mr. Gardiner, speaking of the subject as it affected the sparse population of Scotland, said that in one particular part of his own constituency the nearest doctor was forty-two miles away, and there was no nurse resident within any part of that area at present. Therefore the question was urgent, as it was not desirable that any one who only happened to wear a nurse's uniform should be admitted to the homes of the people.

Sir Robert Woods, as one of the Irish medical members of the House, was glad to give expression to the feeling of relief felt by nurses and medical men in Ireland that this bill was being proceeded with.

Sir Watson Cheyne urged that the Government should adopt the bill. Such success as he had had was, he said, largely due to the little band of splendid and loyal nurses he had gathered around him. Nothing relieved a surgeon's anxiety more and enabled him to concentrate on the important parts of his work than to know that he had at hand skilled nurses. The nursing profession must be made more attractive by giving it a better status and better remuneration. Recently in connexion with one of the military services he learned from one of the best theatre sisters he had ever met that she was getting £45 a year and that for messing and clothing she had to pay £39, so that all she had in the way of pocket money and for provision for old age was £6 a year. Objection had been taken that a registration would not necessarily imply good nursing qualifications. But the same objection might be made as regards the registration of doctors or any other body of people who were registered as fit for a profession. The register would show that the nurses had had such and such training, had passed an examination, and had been considered of good character. They could not say any more of a doctor than that he had passed the minimum number of examinations required to register, and that did not imply that he was a first class doctor or of any high character, but nevertheless it was an extremely important thing, and the register would show that for a period to be fixed the nurse had been training and exhibited a certain knowledge of her profession. It was said that years afterwards there would be no guarantee that the nurse had the same knowledge. He thought it probable that she would have a great deal more. It was assumed that with age and experience a doctor improved, and the same arguments would hold good as regards nurses.

Mr. W. Graham, as a member of the Labour party, also supported the bill, and, speaking as a Scottish member, referred to the remuneration given by some of the public health authorities in Scotland. The rate could not be defended, and he would like to see a minimum established and enforced. That would be in keeping with the policy of the British Medical Association in its own sphere. Local authorities could not engage medical men unless they were prepared to pay up to a certain standard.

Mr. Rawlinson said he would not oppose the second reading of the bill, though he was not certain that the object could not

be secured by methods other than those indicated. He submitted that the real question was whether a central body should make a person eligible or not, or whether the hospitals would license persons to wear the uniform of that particular hospital.

Major Astor (Parliamentary Secretary of the Local Government Board) said the Government was generally in favour of the principles contained in the bill. Members were aware that there was another bill, the backers of which had not been so successful in respect of the ballot. Points in that other measure would doubtless be considered when this bill went before the Standing Committee. The Government's attitude towards it must depend upon the shape in which the measure returned to the House.

The bill was then read a second time and referred to Standing Committee.

Venereal Disease.

In the House of Lords, on April 2nd, Lord Willoughby de Broke initiated a debate on the spread of venereal disease and the possibilities indicated by recently acquired knowledge in regard to disinfection. Many, he said, were in favour of a renewal of State regulation, but he quoted authorities to show that, even if recourse were had once more to that system, all the difficulties would not have been surmounted; medical examination, for instance, must, in the circumstances, be far from perfect. The time might not be far distant when engaged couples might be expected to exchange certificates of good health. The situation must, however, be dealt with as it was. The opinion of the Royal Commission was against compulsory notification, which was therefore omitted from the Ministry of Health Bill, though he understood representations would be made to that Ministry requesting further consideration of this point when the bill came on report before the House of Commons. Both the preventive and curative methods of treatment would thus come under notice. Rapid strides had been made in the diagnosis and cure of syphilis, and the prospects for sufferers enormously improved. On the other hand gonorrhoea was recognized as one of the most intractable diseases. As to both conditions the greatest emphasis was placed on the value of disinfection, previous and subsequent to risk. The question might be raised whether the medical profession were ethically justified in providing beforehand against risks to be subsequently incurred. For his part he was unable to draw a distinction in this respect between treatment before and after, especially when it was remembered that many innocent persons might be involved. The suggestion had been made that, now a Ministry of Health was being established, it might be the duty of the medical officers to furnish such information as should be at the disposal of the individual to prevent the spread of this disease. He commended the subject to the serious consideration of the Government, and formally moved to that effect.

Lord Sydenham, in a speech of marked moderation, indicated agreement with what had been said as to the value of disinfection, but quoted authorities to show that scrupulous care would have to be exercised in the employment of the methods suggested. He reminded the House of the difficulties in this connexion, aggravated in so many cases by the intoxicated condition of the victims. Only partial security could be looked for, and the facilities would, in his view, tend to increase recklessness, so that there would be no better result than hitherto. American opinion, he said, was dead against the use of prophylactics, the United States Government being unwilling to sanction it, even if urged to do so by the medical profession. British public opinion would, he believed, take the same attitude.

The Archbishop of Canterbury expressed his appreciation of the excellent motives prompting Lord Willoughby de Broke to raise the question, but he adhered to the view that the medical and moral aspects of the problem could not be separated, and that there were moral objections to the course suggested. He held, too, that the proposed methods were out of harmony with modern legislation, because they would tend to the encouragement of self-treatment on the one hand, and resort to the quack on the other—the least desirable of health legislation.

Lord Burnham said the information given by Lord Sydenham as to the American army was misleading. He had lately spent some time with the American armies in France, and learned that there was a prophylactic station in every little village in which was a detachment or platoon of American soldiers, with the result that venereal disease in the American forces had been reduced to 0.1 per cent. These measures had been carried out without the smallest objection by any ministers of religion. Lord Downham (formerly President of the Local Government Board) said it was impossible for the Government to adopt any other policy than that now being carried out. During the last year 55,000 cases had been treated at 120 centres.

Lord Sandhurst, for the Government, promised to draw the attention of the Local Government Board to what had been said; but he reminded Lord Willoughby de Broke that the authorities differed greatly as to the wisdom of applying the principles he had recommended in the way suggested. The methods now being adopted by the Local Government Board were (1) educational campaign—medical, social, moral; (2) effective co-operation with the military authorities; and (3) free facilities for prompt diagnosis provided at the venereal centres.

Lord Willoughby de Broke accepted the assurance of Lord Sandhurst that what he had said would be considered, and withdrew his motion.

Tuberculosis: Interdepartmental Committee.—Major Astor, on April 1st, after stating in reply to Colonel Ashley that the number of ex-service men suffering from tuberculosis awaiting sanatorium treatment on February 28th was approximately 470, announced that the Interdepartmental Committee appointed to report on the subject would consist of representatives of the several departments concerned and of some members of the House of Commons. He had been asked to be chairman. In answer to Mr. J. H. Thomas, Major Astor acknowledged that there was a far longer waiting list of civilian tuberculous people. He claimed, however, that the Local Government Board was taking every step to encourage the provision of institutional treatment.

Army Officers under Treatment for Tuberculosis.—In reply to Sir Watson Cheyne, on April 1st, Captain Guest said that the number of officers discharged on account of pulmonary tuberculosis since August 4th, 1914, of which the Ministry of Pensions had record, was 615. All but twenty, who had not accepted, had been given treatment. The number of ex-officers at present under treatment was 449, made up as follows: In sanatoriums, 152; convalescing at the coast or in the country, 41; under treatment at home, 256.

Artificial Limbs for Officers.—In reply to Major Cohen, Sir L. Worthington-Evans said, on March 27th, that the regulations as to the supply, repair, and renewal of artificial limbs for discharged sailors and soldiers would be extended to all retired officers, with the result that every retired officer would be supplied with the artificial limb he required, and also with an additional limb as soon as the stump was ready to receive it, and the supply was available, without charge. The Ministry would also undertake all repairs and renewals of limbs.

The Medical Re-examination of Wounded Soldiers.—Major Newman asked, on March 31st, whether it was with the authority of the Pensions Minister that wounded men, on re-examination by medical boards for adjustment of pensions, were asked whether they were working, whether they were following their own trade, how long they had worked, and whether their disability affected their earning capacity. He suggested that in many cases the pensions of men giving truthful answers were reduced, while those of men who gave misleading answers were maintained. Sir James Craig replied that some of the questions referred to were put by medical boards, but they were instructed to inform each man that if he preferred not to answer he need not. The insinuation made by Major Newman could not be accepted. The assessment of the pension was based solely on the degree of physical disablement. No doubt it was often the case that a man found his pension cut down when he next went before a board. But that was due to the improvement in his physical condition. It often assisted the Board to have the right to ask the men what their work was at the present time.

The Training of Blind Soldiers.—Sir James Craig, in reply to Mr. Aneurin Williams, on March 31st, said that under the Royal Warrant charges in respect of the training of a disabled man might only be paid for by the Ministry of Pensions if they were not otherwise provided for. As it would be hardly possible to improve upon the training given at St. Dunstan's Hostel, and at Newington House, Edinburgh, no occasion arose for making other provision. The present arrangement was to the advantage of the men, as it enabled their allowances to be paid to them in full, without deduction for the cost of maintenance.

Disablement Pensions and Tuberculous Soldiers.—Sir Arthur Shirley Benn asked, on March 28th, whether when a soldier, who had previously been a clerk, was given a pension on account of tuberculosis a sufficiently high pension was given that he should not have to return to clerical work. Sir L. Worthington-Evans said that disablement pensions were granted only to the degree of physical disablement, without regard to occupation. But if it were dangerous for a man to resume his pre-war occupation he might be trained for a new one. During training he would receive allowances equal to the highest rate of pension, or if more favourable to him, allowances based on his pre-war earnings. If when trained he found his pre-war earnings lessened so as not to provide adequate compensation he might be eligible for an alternative pension.

Sanatorium Benefit Expenditure.—Major Astor, in a written answer, on March 31st, confirmed Sir Kingsley Wood's statement that the London Insurance Committee in their estimates for 1919 showed a prospective deficiency of £38,480 in the funds for sanatorium benefit.

Vivisection.—It was mentioned last week that the Dogs Protection Bill, intended to prevent experiments for medical research on dogs, introduced by Sir F. Banbury, was read a second time on March 21st, and sent to a Standing Committee. On March 27th "a bill to prohibit the vivisection of the higher animals" was introduced by Mr. J. Cathcart Wason (Orkney and Shetland), supported by Colonel Burn (Torquay) and Sir Henry Cowan (Aberdeen, E.). The bill seeks to prevent any experiment, inoculation or demonstration upon any dog, cat, horse, mule, ass, monkey, ape, or baboon.

THE United States Senate has passed a resolution appropriating £20,000 to provide Government aid in combating influenza.

GRADUATE MEDICAL EDUCATION IN LONDON.

THE scheme for the establishment of a Post-Graduation Association in London, which has been under consideration for some time, was recently approved at a meeting of representatives of post-graduate schools and special hospitals. The draft was sent to the individual bodies for their approval. A financial subcommittee and an organizing subcommittee have been appointed to prepare plans and estimates. A public meeting will probably be held at the Royal Society of Medicine on the afternoon of April 29th, at which the President of the Board of Education, Mr. H. A. L. Fisher, will, it is hoped, take the chair.

A SCHEME FOR POST-GRADUATE MEDICAL EDUCATION APPROVED BY THE LONDON MEDICAL SCHOOLS.

I. INTRODUCTION.

A. A Post-Graduate Association is required in order to meet the large demand for teaching from the following classes of medical graduates:

1. General practitioners in Great Britain who would like to spend a portion of their holidays in getting up to date in all branches of their work, or who wish to spend a few months in learning all that they can about some particular subject in which they desire to specialize, either completely or in conjunction with general practice.

2. Medical officers of the Royal Navy, the Royal Army Medical Corps, the Royal Air Force, and the Indian and Colonial Medical Services, who have to attend post-graduate courses at stated intervals.

3. Graduates from British colonies, India, and Egypt, including those who have recently qualified and wish to complete their medical education in England, and some senior men who fall into the same category as the men in Class 1, but who are prepared to devote a longer time to the purpose than English practitioners.

4. Graduates of allied countries, especially Americans, large numbers of whom have in the past studied in Germany and Austria, in many instances simply because they were unable to obtain equal facilities in England, as well as the French, who have hitherto rarely studied abroad, and the Japanese.

B. Hitherto post-graduate teaching in Great Britain has not been encouraged in the medical schools, because the majority have considered that their first duty was to teach their own undergraduate students, and have therefore given very limited facilities to graduates.

C. It should now be recognized that, although the teaching of undergraduate students must not be allowed to suffer, the claims of graduates should also be considered, in order to promote the efficiency of the medical profession throughout the British Empire.

D. The co-operation of America and France should be secured. This could best be done through the recently organized American Post-Graduate Union and the Committee of the Société Médicale des Hôpitaux de Paris on "Medical Education in the Hospitals for Foreigners."

II. SCHEME FOR GENERAL AND SPECIAL POST-GRADUATE COURSES.

(*a*) *In the Existing London Undergraduate Medical Schools.*

All of these schools have agreed to provide the following post-graduate instruction:

1. *General Courses.*—Each medical school will provide annually two courses of post-graduate teaching each of a fortnight's duration or one course of a month's duration at the discretion of the individual schools, a succession of periods being arranged so that such teaching is obtainable throughout the year. The dates of the courses at each school will vary from year to year, so that more or less convenient periods will fall to different schools in different years. The rota should be drawn up in such a way that each school may know the dates for its courses for the next three years.

Each school, after inquiring from its teachers what instruction or courses they are prepared to give, will be asked three months in advance to draw up a programme which will give opportunities for study throughout the working day in the subjects included in the courses, and will decide how many students can be admitted to each course.

2. *Special Courses.*—Special courses will be arranged in the schools where a graduate may have the opportunity of deeper study in any particular subject. Such courses will usually last for not less than three months, and it may be advisable that different parts of the courses should be carried on at different institutions. The special courses should be as comprehensive as possible. For example, a course in "disorders of digestion" might include:

(1) Lectures by an anatomist, a physiologist, pathologist, radiographer, physician and surgeon.
(2) Clinical teaching on cases in the wards and out-patient departments and on other cases collected by the teacher from his wards or out-patient departments during the previous six months.
(3) Practical instruction in the *x*-ray investigation of disorders of digestion by the radiographer.
(4) Practical instruction in chemical analysis of gastric contents and faeces by the clinical chemist.
(5) Practical instruction in bacteriological and microscopical examinations of faeces by the pathologist.
(6) Demonstrations on museum and *post-mortem* specimens by a demonstrator of morbid anatomy or any other physician interested in the subject.
(7) Demonstrations on the use of the sigmoidoscope.
(8) Opportunities for seeing operations on cases already investigated by the students.

3. *Research Work and Clinical Assistantships.*—After having attended such a special course, a graduate may apply to the teacher responsible for the courses for permission to do research work under him or to act as his clinical assistant for a further period. For example, a graduate interested in children's diseases or orthopaedics, after attending a course on one of these subjects could then, if he is regarded as sufficiently qualified, stay on at the hospital as clinical assistant and do research work under the physician for children's diseases or orthopaedic surgeon respectively. At the same time he could spend an hour or two each day in following the courses given on these subjects during successive fortnights at the different schools and special hospitals. He would thus get quite exceptional opportunities for study.

4. *General Hospital Practice.*—Facilities will be afforded for students to attend the ordinary hospital practice of the medical schools.

(*b*) *In the Existing London Post-Graduate Schools and Special Hospitals.*

Those which have given post-graduate instruction in the past will continue to do so in co operation with the other teaching institutions working with the association. There will be no limit placed on the duration of their courses of instruction, which may continue throughout the year.

(*c*) *Provincial, Scottish, and Irish Schools.*

The medical schools of the United Kingdom will be invited to co-operate with the London Association in providing periodic courses of instruction for graduates, which would run concurrently with those of the former, especially at times, such as the summer months, when the number of graduates would probably exceed the number who could be adequately dealt with in London.

(*d*) The British Association of Radiology and Physiotherapy has agreed to co-operate.

(*e*) It is hoped that arrangements may be made to utilize for teaching purposes the unique collections of the Royal College of Surgeons and the clinical facilities of metropolitan asylums, fever hospitals, and Poor Law infirmaries, and opportunities should be given for the study of public health and forensic medicine.

III. THE CENTRAL ORGANIZATION.

1. The Council of the association will consist of representatives of all participating teaching institutions, and representatives of the Board of Education, the National Health Insurance (Medical Research Committee), the Dominions, and United States of America. The number of representatives of the twelve London schools serving on the Council shall not be less than the total number of representatives of the other bodies. Care should be taken to arrange for representation of subjects taught as well as of institutions.

2. Steps will be taken to frame such a constitution for the association as will render it competent to hold property and to receive a grant from the Board of Education.

3. The Council of the association will have power to appoint an executive committee and such other administrative committees as may be necessary. The permanent whole-time officers and secretarial staff of the association will be appointed by the executive committee.

4. The home of the association will be a building in central London. It will contain the offices of the permanent (secretarial) staff, together with a library, recreation room, and luncheon and tea rooms. A suitable and well equipped building would become the meeting place for the medical graduates of the empire and allied nations.

5. The permanent secretarial staff of the association will co-operate with the teaching institutions in organizing the courses of instruction, and will issue the necessary advertisements, receive the fees, and arrange for the admission of students to the different courses in conformity with the number of students for which each is open.

IV. FINANCE.

1. The participating schools will be under no financial liability in connexion with the scheme.
2. It is hoped that sufficient money will be forthcoming from private donations to provide for the erection and equipment of the building and some endowment towards its annual maintenance.
3. Each student on admission will be required to pay a registration fee, which will go towards the support of the association, apart from the fees payable for the courses of instruction. It is proposed to apply to the Board of Education for a grant sufficient to make the association self-supporting.
4. As any grant from the Board of Education will be paid to the association, the medical schools will not receive any *direct* Government grant for post-graduate education, and will therefore only be responsible to the association for the instruction they undertake to give.
5. The fees payable for the various courses will be decided by the Executive Committee in consultation with the individual schools, the object being to maintain as nearly as possible a uniform standard.
6. Each participating school will undertake to give no organized post-graduate courses independently of the central organization, with the exception of classes for special examinations.
7. The income of the association would thus be derived from:

(i) Interest for endowment fund,
(ii) Registration fees paid by students,
(iii) Fees for courses, and
(iv) Government grants;

and the expenditure would be for:

(i) Maintenance of the association's buildings,
(ii) Salaries of permanent secretarial staff,
(iii) Advertising, printing prospectuses of courses, etc., and
(iv) Payment of participating schools.

V. THE POSITION OF THE UNDERGRADUATE STUDENTS IN RELATION TO THE POST-GRADUATE ASSOCIATION.

In arranging the courses of instruction care will be taken to interfere as little as possible with the work of the undergraduate students. In the case of lectures no difficulty would arise from the presence of undergraduate students in seats not reserved for the post-graduates, but admission to all other forms of instruction will be restricted to those for whom the course has been arranged.

THE WAR.

THE VICTORIA CROSS.

A SPECIAL Supplement to the *London Gazette*, March 31st, gives an alphabetical list of recipients of the Victoria Cross, together with the theatre of war in which the distinction was gained in each case, and the date of the deed. The following medical officers (whose names have all previously appeared in the JOURNAL) are included in the list, which appears to be confined to awards made during the last three years of the war:

Temporary Captain H. Ackroyd, M.C., late R.A.M.C., attached 6th Battalion Royal Berkshire Regiment (Ypres, France, July 31st to August 1st, 1917); V.C. gazetted September 6th, 1917.

Captain W. B. Allen, M.C., R.A.M.C.(T.F.) (near Meonil, France, September 3rd, 1916); V.C. gazetted October 26th, 1916.

Captain N. G. Chavasse, M.C., late R.A.M.C.(T.F.) (Guillemont, France, August 9th, 1916); V.C. gazetted October 26th, 1916. *Bar:* (Wilitje, Flanders, between July 31st and August 2nd, 1917); Bar gazetted September 14th, 1917.

Captain J. L. Green, late R.A.M.C.(T.F.) (Fonquevilliers, France, July 1st, 1916); V.C. gazetted August 5th, 1916.

Captain J. F. Russell, M.C., late R.A.M.C.(T.F.), attached 16th Battalion, Royal Welsh Fusiliers, T.F. (Tel-el-Khuweilfeh, Palestine, November 6th, 1917); V.C. gazetted January 11th, 1918.

Captain J. A. Sinton, I.M.S. (Orah Ruins, Mesopotamia, January 21st, 1916); V.C. gazetted June 21st, 1916.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON LIEUTENANT W. E. LLOYD, R.N.

Surgeon Lieutenant Walter Everard Lloyd, R.N., died on March 20th, aged 34. He was the youngest son of the late Dr. W. H. Lloyd of Llandilo, Carmarthen, and was educated at the London Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1908. He entered the navy on November 5th, 1909, and at the beginning of the war was serving at Wei-hai-wei, but had recently been invalided.

ARMY.

Died on Service.

MAJOR H. H. GRIFFITH, A.A.M.C.

Major Henry Hunter Griffith, Australian Army Medical Corps, died of pneumonia after influenza in the 3rd London General Hospital on March 23rd. He was the son of Mr. Charles L. Griffith of Toorak, Melbourne, and of Tyrie, New South Wales.

CAPTAIN W. R. ALLEN, R.A.M.C.

Captain Wellesley Roe Allen, R.A.M.C., died of typhus at Cairo on March 11th. He was educated at Trinity College, Dublin, where he graduated B.A., M.B., B.Ch., and B.A.O. in 1909. After filling the posts of house-surgeon at Monkstown Hospital, Dublin, and of second assistant medical officer at Nottingham City Asylum, he became junior assistant medical officer at Broadmoor Criminal Lunatic Asylum, Berkshire. He took a temporary commission as lieutenant in the R.A.M.C. on July 5th, 1915, and was promoted to captain after a year's service.

CAPTAIN J. W. BINGHAM, R.A.M.C.

Captain John Warnock Bingham, R.A.M.C., was reported as having died on service, in the casualty list published on March 21st. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1907. Before the war he was in practice at Blyth, Northumberland. He took a temporary commission as lieutenant in the R.A.M.C. on February 1st, 1915, and was promoted to captain after a year's service.

CAPTAIN G. C. METCALFE, R.A.M.C.

Captain George Christopher Metcalfe, R.A.M.C., died from the effects of an accident at Lucknow on March 16th. He was the only son of the late John H. Metcalfe of Pateley Bridge, Yorkshire, and was educated at Cambridge, where he graduated B.A., and at University College Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914. He took a temporary commission as lieutenant in the R.A.M.C. on August 7th, 1914—three days after war was declared—and was promoted to captain on completion of a year's service.

DEATHS OF SONS OF MEDICAL MEN.

Begg, Thomas Mylne, only surviving son of Dr. Charles Begg of Bath, died at San Diego, California, on March 26th, of tuberculosis, contracted during service in the Motor Control, Royal Navy, in 1916–17.

Buckmaster, Charles O. B., Lieutenant 3rd Duke of Cornwall's Light Infantry, only son of Professor G. A. Buckmaster, M.D., died at Holywood Officers' Hospital, Belfast, of influenza, on March 10th.

Bywater-Ward, Commander, R.N., only surviving son of the late Dr. J. Bywater-Ward of Oxford, died at Shanklin, Isle of Wight, March 14th, aged 37.

Hayes, Marshall, Lieutenant Cheshire Regiment, youngest son of the late Surgeon-Major W. H. Hayes, I.M.S., died of malaria and pneumonia at Manning Heath, Horsham, on March 23rd, aged 35.

Stovin, Frederick Cecil, Lieutenant Royal Air Force, late Royal Naval Air Service, youngest son of Dr. Stovin of Westcliff-on-Sea, Essex, reported missing on April 24th, 1918, now reported by German Red Cross as killed on that date in an aerial fight over the German lines, aged 19.

Strugnell, Harold Frederick Harrison, Major Royal Marine Light Infantry, eldest son of Dr. Strugnell of Highgate Road, London, N.W., died suddenly at Sherwell, Isle of Wight, on March 21st. He was educated at Highgate School, and got his commission in the R.M.L.I. in 1900. He took part in the first raid on Zeebrugge, in H.M.S. *Exmouth*, and served later at Salonica, Malta, and Otranto.

NOTES.

The Sultan of Egypt has conferred the Order of the Nile, Fourth Class, upon Major C. W. W. Sandes, R.A.M.C., Captain S. McK. Saunders, R.A.M.C., and Captain B. H. H. Spence, R.A.M.C., in recognition of valuable services rendered in connexion with the war.

Captain R. F. D. MacGregor, M.C., I.M.S., and Captain J. Scott, D.S.O., I.M.S., have been promoted Brevet Majors in recognition of distinguished service in connexion with military operations in the field.

Captain C. W. Wirgman, R.A.M.C.(T.F.), has been promoted Brevet Major in recognition of valuable services rendered in connexion with the war.

Lieutenant C. S. Dixon, 78th Battalion Winnipeg Grenadiers, son of Dr. D. S. Dixon of Tofino, B.C., has been awarded the Military Cross for operations near Valenciennes.

The military hospital maintained throughout the war by the Federated Malay States at Blackmore End, Kimpton, Herts, was closed on March 31st. The total number of patients treated at the hospital since its establishment was 2,507.

Scotland.

NEW CHAIRS AT EDINBURGH.

AT the meeting of Edinburgh University Court on March 17th a letter was read from Professor Alexis Thomson, offering on behalf of a benefactor who desired to remain anonymous a gift of £10,000, to endow a lectureship in orthopaedics. The gift was gratefully accepted. It was also announced that certain commercial institutions had offered £15,000 as an endowment for a chair in accounting and business methods. The next business of the court was to receive draft ordinances for the foundation of this chair, that of psychiatry, and for new chairs in forestry and zoology. An Order in Council, dated March 12th, was received, approving the proposal to grant to the four Scottish universities powers to modify or suspend certain regulations in their application to persons who have been engaged in naval, military, or other public service connected with the war. A proposal from the Senate was accepted that supplementary courses of lectures and practical work in chemistry for the first professional examination in medicine should be given during the summer session by the professor of chemistry in relation to medicine, for the benefit primarily of students whose courses had been interrupted by war service.

EXPANSION OF THE UNIVERSITY OF EDINBURGH.

At the spring graduation ceremony on March 27th the Principal said that the university was fast recovering from the depletion and starvation of the long years of war. The number of students who had entered from the beginning of the session was more than a thousand greater than at the corresponding period of the previous year, and was within something like 250 of the pre-war standard. The university welcomed some 55 men from Canada and 160 men of all ranks, from privates to majors, of the United States army coming, not directly, but from the army of occupation in France and Germany. Sir Alfred Ewing went on to mention the new chairs founded in the university, and said that the new chair of psychiatry established through the co-operation of the managers of the Edinburgh Royal Asylum for the Insane, would be occupied by the medical superintendent of that asylum—a happy arrangement on both sides. A new professorship of zoology to deal more particularly with the invertebrates had been established, and with the help of a grant from the Development Commissioners a professorship in forestry. Turning then to the need for new laboratories, Sir Alfred Ewing said that the university buildings were surrounded by land entirely occupied by residents it would be very difficult to dislodge; there was every reason to believe that an excellent site in the outskirts of the city, only about a quarter of an hour distant from the present university buildings, would be secured. It was, indeed, so large that some of it could for the present be used as an athletic ground.

This new site, it is stated, is immediately south of West Mains Road, the recently constructed approach from Mayfield Road to the Blackford Hill. It extends to fully a hundred acres.

MINISTRY OF HEALTH.

The bill for the establishment of a Scottish Board of Health, the counterpart of the Ministry of Health Bill for England and Wales, is printed in the SUPPLEMENT this week. The bill was read a second time in the House of Commons on Tuesday, April 1st, and was referred to a Standing Committee. In the debate were raised for further consideration in Committee most of the points which were brought before the Lord Advocate in Edinburgh on March 22nd, as noted below.

Dr. McKenzie Johnston, President of the Royal College of Surgeons of Edinburgh and of the Edinburgh Branch of the British Medical Association, submitted representations presented by a deputation consisting of Drs. Keppie Paterson and F. Porter, and Mr. W. Guy, F.R.C.S., L.D.S., appointed at a meeting of the medical profession in Edinburgh and Leith. It was urged that before the bill was enacted it should be submitted to the profession for consideration, that there should be a separate Ministry of Health for Scotland with direct access to Parliament, that the membership of the Scottish Board of Health should consist as to not less than one-third of registered medical practitioners not holding any other appointment under the Ministry, that there should be a medical advisory council elected by the profession itself to which all matters directly or indirectly affecting public health should be referred, and that the Council should be able to submit matters on its own initiative to the Board. It was also asked that the dental profession should be represented on the advisory council. In submitting these representations Dr. McKenzie Johnston said that the profession desired to have more say in the bill, for it felt that there was an opening for great work, and desired very strongly that it should be in a position to use its expert knowledge to forward the aims of the bill. Dr. Porter expressed the hope that the institution of a medical advisory council would give every medical practitioner a personal interest in public health. In reply to some other observations by Dr. Porter, the Lord Advocate said that the advisory council should be a channel by which the result of experience the doctor got clinically could be collected and put at the service of the Board. Mr. Guy, speaking as a dentist, supported the demand that the dental profession should be represented on the Board. The Lord Advocate, in replying to the deputation, said that he felt sure the Secretary for Scotland would appreciate the spirit in which the question had been approached.

A deputation from the North British Branch of the Pharmaceutical Society of Great Britain urged that the Board of Health for Scotland should be independent of the Scottish Office, and should include one qualified pharmacist, and that in any consultative council pharmacists should be included.

A deputation from the Scottish Conference of Friendly Approved Societies was also received; it asked that there should be a Minister of Health for Scotland who would not necessarily be the Secretary for Scotland, expressed the opinion that representation on the Board should be open to both sexes, and deprecated the proposal to have an advocate of seven years' standing. Representations were also made to the effect that the power of the Local Government Board in respect of Poor Law administration should not be included in the new bill.

A deputation from the Sanitary Inspectors' Association urged that the Board should include a member of that association.

A deputation from the Parish Councils Association expressed a wish for the appointment of a commission of inquiry to report on the co-ordination of all forms of public assistance under one head. The transfer of the Local Government Board would bring parish councils under the new administration, and before any new Poor Law regulations were introduced there should be an inquiry.

England and Wales.

THE LONDON COUNTY COUNCIL AND THE MINISTRY OF HEALTH.

AT the meeting of the London County Council on April 1st the Education Committee placed on record its strong opinion that only those powers and duties obviously included in the terms "medical inspection and treatment" should be transferred from the Board of Education to the new Ministry of Health. Many questions of school administration, such as physical education, the lighting and ventilation of school buildings, and the nature of the work suited to normal and abnormal children, although they had

a health aspect, were essentially matters of an educational character, and such matters should remain under the direction of the Board of Education. The Committee also expressed the opinion that important proposals in connexion with the Ministry of Health should not be introduced by means of Orders in Council; and, further, that there was some risk of the consultative councils intervening between the central and local authority. Two other committees also made representations criticizing the tendency to rely upon Orders in Council, and urging that steps should be taken to safeguard the County Council's interest in respect to possible interpositions of the consultative bodies, which it was felt should be purely advisory in their operation, and should not have statutory powers. Resolutions embodying all these views were passed by the Council.

CENTRAL MIDWIVES BOARD.

At a penal session of the Central Midwives Board held on March 20th, Sir Francis Champneys presiding, a resolution was passed that:

> In all cases in which sentence is postponed for reports from the local supervising authority, the substance of any unfavourable report be communicated to the accused, and that she be given an opportunity of replying before her name is removed from the roll.

Two midwives were struck off the roll, one for neglect of a case of ophthalmia neonatorum resulting in the total loss of sight in one eye and partial loss of sight in the other. At the ordinary meeting held the same day an announcement was received from the Society of Apothecaries that Mr. Charles Sangster had been re-elected as its representative on the board for the ensuing year. The Lords of the Council have approved the following scale of expenses to be paid to members of the board under the provision of Section 4 of the Midwives Act, 1918:

> First class travelling expenses and subsistence allowance at the rate of 20s. a night (to cover twenty-four hours' absence) and 6s. 8d. for absence from home during the day exceeding five hours.

Correspondence.

THE SUPPORTS OF THE UTERUS.

SIR,—In the BRITISH MEDICAL JOURNAL of March 29th, p. 378, is a report of a discussion at a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, at which the supports of the uterus were considered. I desire to refer to two points raised by speakers which call for discussion.

Professor Dixon's idea that some support to the uterus (suspensory in nature) is necessary to prevent the uterus being thrust downwards or telescoped into the vagina by the intra-abdominal pressure would of course be tenable if the uterus and vagina were isolated organs, so placed in the pelvis that the uterus was superimposed on the vagina like a bust on a (collapsible and hollow) pedestal, and so affected by the intra-abdominal pressure that the uterus (and its fundal extremity) alone were subjected to that force. But when we recognize that the pelvis is full of viscera, all of which are exposed to the intra-abdominal pressure, and in consequence that surrounding viscera and visceral parts are always being pressed against the uterus and vagina, Professor Dixon's idea, I submit, becomes untenable. In the normal adult, with bladder and rectum empty, and the individual erect, there obviously is no tendency for the uterus to be telescoped into the vagina, for whilst the long axis of the vagina passes upwards and backwards (and much more backwards than upwards), the long axis of the uterus passes upwards and forwards (and much more forwards than upwards, the organ often being horizontal, or even depressed anteriorly). And when the bladder is distended and the uterus raised in the pelvis so that the long axes of these two viscera come much more into line, the force which presses the uterus backwards also presses it upwards. If in this case the intra-abdominal pressure acted only on the fundus of the uterus, we could imagine the organ being depressed into the vagina, and that lateral suspensory bands were necessary to prevent such depression. But the intra-abdominal pressure acts on the distended bladder as well; and the pressure of the bladder downwards, and the pressure it must thus exert backwards (because of the resistance of the bony walls of the pelvis anterolaterally and of the pelvic floor below) not only prevents any tendency for the cervix to be depressed, but is even the cause of the cervix being more posterior and higher in the pelvis. Such considerations show that ligamentous attachments of the cervix and vagina to the pelvic walls are not necessary to explain either the uterine position or its change in position with the change in volume of surrounding viscera. What is necessary is to consider what keeps surrounding viscera in place. When we realize that the pelvic outlet is occluded by a mechanism comparable in every way with the thoracic diaphragm and abdominal wall (which occlude the abdomino-pelvic cavity above, in front and at the sides), and that the whole abdomino-pelvic cavity is full of viscera, incompressible except for gaseous contents, the mechanism of the uterine support, and indeed of the support of adjacent viscera, becomes easy to understand.

The other point I wish to raise is in respect of a remark made by Sir William Smyly. This speaker expressed the opinion that anyone who has performed hysterectomy can scarcely doubt that the cardinal ligaments are mainly responsible for holding the uterus in place. I wish to ask Sir William Smyly whether this refers to the pregnant as well as to the non-pregnant uterus. It was once stated (I believe by a well known surgeon who had removed many pregnant uteri) that the pregnant uterus was most easily removed. If this be true, I submit that the ease with which the pregnant uterus is removed is due to the change which occurs in the pelvic visceral connective tissue during pregnancy—to its succulency and looseness—in which change presumably the cardinal ligaments participate. Will Sir William Smyly tell us what is the state of the cardinal ligaments in pregnancy? If the cardinal ligaments disappear in pregnancy, or show any tendency to such change, the whole conception of the visceral connective tissue hypothesists falls to the ground.

The fact that these ligaments exist in the non-pregnant, and offer an obstacle to hysterectomy in that state, does not show that they support the uterus in the living active subject, when all the other viscera are in place, pressing on the uterus. The existence of these structures in the non-pregnant is explained by the excursions of the intra-abdominal pressure, which diminish in pregnancy. As to their significance, that is shown by the behaviour of connective tissue condensations elsewhere, notably in that about the blood vessels, under different conditions. All this I have considered at length elsewhere, and it is not necessary to dwell further on it here.—I am, etc.,

Rugby, March 31st. R. H. PARAMORE.

THE NAVAL MEDICAL SERVICE.

SIR,—I am glad that the "case for medical reform" has been so ably expressed in the BRITISH MEDICAL JOURNAL of March 1st, and it is to be hoped that some improvement in the conditions offered will be the result of the experience during the war of contrasting civilian with service conditions.

Criticism—especially destructive criticism—is easy, but is of little practical advantage, unless constructive measures are suggested to remedy the evil. This your article attempts with some success to do from the service point of view; but regarding it from the civilian side, it does not appear to me that the main point has been emphasized as to why the Royal Naval Medical Service is unpopular.

As far as my experience during the war goes, and from conversations with many surgeons, R.N., Temp. R.N., and R.N.V.R., it is the scientific and educational aspect which requires the most remodelling. During the whole of the war I have never been called upon to join in a discussion on a single medical topic of general or particular interest. Neither in barracks nor in the Grand Fleet has there been any attempt to my knowledge to collect meetings of medical men to discuss matters of scientific interest. Nor have there been any facilities organized for the studying of important measures, relative, for example, to the prevention and treatment of influenza, prophylaxis and treatment of venereal disease, or the first treatment of wounds in action; to say nothing of the innumerable

pitfalls in service routine which temporary officers might have avoided by frank general discussion instituted by seniors in the service.

If I may say so without offence, I believe the senior members of the service are mostly to blame for the unpopularity of the Royal Naval Medical Service. Courteous and kindly men as they are, they are lacking in the initiative in scientific matters which we find and value so highly in civil life. Medical men are apt to "starve" without the keen incentive of meeting with colleagues, and learning from each other.

I should like to suggest that naval hospitals should have a specially appointed teaching staff appointed in the special subjects your article alludes to. If these might be civilians attached as a visiting staff for this purpose it would probably be of greater advantage. There is no doubt that surgeons would attend demonstrations and lectures readily enough, especially if these were given in the afternoons, and facilities granted them of so doing from ships in the ports. Certainly men on shore and on leave would do so. There is a hunger among service men for up-to-date courses of instruction, and hospital courses should be made possible for all at short intervals.

There would be real advantage if instead of surgeons being attached to barracks while awaiting appointments they were attached to dépôt hospitals, and appointed therefrom. There are always a number of men at a loose end in barracks, and it is usual to find them some unimportant job to occupy their time. This partly fills their mornings and prevents them from going to hospital, but at present there appears to be no welcome in naval hospitals for casual visitors anxious to see the work. The staff are too busy getting their morning work done to stop to show or discuss cases with outside men. At the same time that surgeons are awaiting their appointments they might well help during the mornings with the routine work, and join the instructional courses during the afternoons. In a large naval base there are always a number of ships, and a regular supply of men could be made available for these courses.

Another point is of importance as showing the treatment of surgeons by their own chiefs, which must lead to grave dissatisfaction. The case is best illustrated by the following personal episode. During the influenza period an Admiralty weekly order arrived stating that an anti-influenzal vaccine had been prepared and would be available shortly, and directing that medical officers of ships should ask for volunteers for this prophylactic treatment. No details were forwarded to principal medical officers of ships from the medical director-general's office, nor from the laboratory, as to the composition of this vaccine, nor of the anticipated after-effects. Owing to my refusal to employ a remedy of which I knew nothing I had a stormy scene with my captain who had evidently been criticized by the admiral for not obtaining volunteers for the vaccine treatment. This unscientific treatment of members of a scientific profession by its own departmental chiefs, and the interference of the executive in matters of purely professional importance, is quite enough to destroy all professional confidence and to keep men out of the Naval Medical Service. But this is only one instance of what is constantly being met with, and is talked about outside the service; and it is largely the reason why nearly every Royal Naval medical officer would gladly leave the service.

This by no means exhausts all that might be said on this subject, but it is enough to illustrate the point that much might be done by the senior medical officers in the service to render the Royal Naval medical officer more popular.—I am, etc.,

W. KENNETH WILLS, M.B.Cantab.,
March 9th. Acting Surgeon Commander R.N.V.R.

THE HANDICAP IN PRIVATE PRACTICE.

SIR,—Perhaps I can amplify the excellent letter of Lieut.-Colonel Henry Smith, I.M.S., while quite agreeing with him in the point that the inferior stamp of mind gets on best in Civil Services, as they are at present constituted. I write from the experience of thirteen years' official work, and also of twenty in general industrial practice, which is very different from a general practice where the bulk of the patients are more or less middle class.

I agree with Dr. C. Mercier's contention that repose, not light, is the greatest thing desired by the orthodox civil servant. There are certain main maxims—You shall serve your departmental subchief alone; you shall regard your department as a watertight compartment; you shall never consider its rules and regulations as referring to the nation's welfare as a whole. It is accepted that it is wicked to initiate, or look for work; you are causing trouble to those more highly placed. Another is, You shall serve your fellow citizens, whose servant you are in theory, not one iota beyond departmental rules and regulations; the man who says they only indicate, but do not finally limit, your responsibility is a traitor to your chief and to your future.

This war has given an impulse of thought to the nation and intensified its needs, but the Ministry of Health is not an established service with old traditions. It will be closely criticized by the press and the House of Commons, and, as far as I can see, the greater part of the work will be done—in fact, nearly all of it—by doctors who are state paid and state controlled, but who will not be in the position of civil servants.

Even now, in these democratic days, the permanent civil servants find it needful to have self-protecting and helpful organizations, and how much more efficient such action would be in the hands of medical men sufficiently organized to set their views before the general public. The Indian Medical Service is hopelessly bureaucratic, a spirit that is cousin-german to Kaiserism in an intellectual form, and no democratic control can be exercised over it, certainly not for a long time to come.

But this democratic criticism is sure to be of great extent as regards a Ministry of Health, because nine out of ten of the voters will come directly under it: it is sincerely to be hoped that the clerical staff will not be taken over in block from existing established civil services, as was done under the National Insurance Act, we all know with what results.

We cannot become a scientific body under competitive practice. I am perfectly convinced that only those who have worked industrial practices know the evils and difficulties in them. (I am not writing to convince those medical men whose only object in life is to make money; to them nothing except that can appeal.)

1. We have not fair play as regards our health, nor as to old age; if we are ill our practice falls off.
2. Few of us are financially secure until 40: the amount of unpaid work a young man has to do, and anxiety, crush out the opportunity to develop increasing knowledge by study.
3. Financial obligations may side-track the promising and keen student; the third rate chronic may gain success, if he has private means, a good house, and a motor car.
4. The scientific mind is dwarfed; our patients do not come to be cured; they cannot afford it; nor can we usually afford to fight the great vested interests that hamper the health and soundness of the nation.
5. The heart is taken out of our work by the meanness and underhandedness of many of our patients.

The great point now is that many people are beginning to have the idea that the national veins of wealth may be founded on veins of health.—I am, etc.,

London, W., March 19th. G. ROME HALL, M.D.

THE PLIGHT OF THE YOUNG MARRIED DOCTOR.

SIR,—Might I in these days of reconstruction call the attention of yourself and your readers to the very difficult plight of the young married medical officer? Every discouragement seems to be placed in his way, as witness the following results of inquiry as to possible jobs. In peace time it was difficult enough; now, shot out of the army after an absence abroad of, perhaps, three or four years, all pay ceasing without leave as he lands in England, a bonus only when the agents have finished haggling over the accounts (may be during the summer) such income as he has for the two of them taxed as if he had only himself to fend for, he is greeted thus:

1. He thinks perhaps he could get a cheap holiday as a ship's surgeon, paying for his wife. "We never allow wives to accompany our surgeons."
2. He would like to rub up parts of his work. His London hospital offers him bachelor quarters, no salary, and one night off a week.
3. Infirmaries and fever hospitals refuse to look at married men.
4. The Government, saying he is fully qualified, refuse any aid, educational or otherwise, and wash their hands of him.

5. He applies to an agency for a stop-gap job as locumtenent in private practice. "We have very few occasions on which we can recommend married men for these posts. Our fees are 15 per cent. of the weekly agreement"!

Apparently the only public service tolerating married men is the Prison Medical Service, consisting of thirty members.

A rather poor welcome home!

Surely now more than ever marriage should be encouraged, even amongst the despised professional classes.

As this is not a mere personal squeal, I prefer to subscribe only my initials,

March 17th. W. B.-S.

THE IDEAL OF THE PROFESSION.

SIR,—I, like "Colonel R.A.M.C.(T.F.)" (March 15th, p. 324), have had my ideals, fought for them, paid for them, and suffered for them in the past.

He asks why doctors say, "How shall we be defended from the Government?" He cannot be a panel doctor, and he has forgotten during his war service how the Government by an Act of Parliament turned a profession into a trade, with the accent on "trade."

I was faced with ruin or National Health club practice—no alternative, being in a middle and working class neighbourhood. I do not wonder that, despairing of the apathy and want of cohesion in our ranks, and the universal exploiting of our services by charities, municipalities, and the Government itself (for example, free vaccination and death certificates, and next door to free notification certificates becoming more elaborate and exacting every year), all in the public interest—I repeat, I do not wonder that, finding the powers cannot be led by fairness, but can be intimidated by threats, such suggestions are made and action proposed as "Colonel R.A.M.C.(T.F.)" deplores.—I am, etc.,

March 22nd. MAJOR R.A.M.C.(T.).

A RURAL VIEW OF SCHEMES FOR NATIONAL MEDICAL SERVICES.

SIR,—In reply to Dr. Bristowe's letter (BRITISH MEDICAL JOURNAL, March 15th, p. 324), we think that a system of clinics and hospitals can be devised to meet the needs of the rural practitioner.

The term rural is a comparative term, and includes all gradations, from the extreme case of Dr. Bristowe's practice to the condition in which an urban clinic would apply. For the extreme case special arrangements will have to be made, and no basis of remuneration can be laid down until the amount of work required from the rural practitioner has been defined.

The scheme can be made to provide all the improvements in the practitioner's position required by Dr. Butler (BRITISH MEDICAL JOURNAL, March 22nd, 1919, p. 360), especially does it give scope for "ambition." It encourages the progress of the practitioner from general to special work.—We are, etc.,

W. J. HOWARTH,
B. A. RICHMOND,
April 1st. Panel Committee for the County of London.

A METHOD OF OBTAINING ENDOWMENT FOR MEDICAL RESEARCH.

SIR,—I wish to endorse most emphatically the cogent arguments brought forward by "Pathologist" in favour of obtaining from Germany a sum which should be devoted to the endowment of medical research. If the daily press affords any indication of general as well as political opinion, there is a very strong feeling in favour of imposing upon Germany a penalty for the wanton cruelty of her methods in war. Such being the case, it is difficult to conceive of a scheme less open to objection than that of earmarking a sum of £20,000,000 for medical research; for no possible suspicion of self-seeking or desire for commercial advantage attaches to it. In any other connexion the sum would be almost contemptibly small, but if devoted to the purpose in view, it is difficult to assess the magnitude of the benefits which certainly will accrue to humanity. There may be diplomatic or political obstacles in the way of appropriating money obtained in this manner toward a specified purpose, but the memory of those who lost their lives while tending the wounded at sea in torpedoed hospital ships and in hospitals which were bombed, demands a national memorial. What form of memorial could be more fitting than that which "Pathologist" suggests?—I am, etc.,

March 22nd. ANOTHER PATHOLOGIST.

DISINFECTANT TESTING.

SIR,—Dr. Rideal's letter in your issue of March 22nd may give rise to a certain amount of misunderstanding, as it gives the impression, no doubt unintentionally, that the Rideal-Walker method of testing disinfectants has been adopted by the British Disinfectant Manufacturers Association as the standard method. This is far from being the case. All this association has agreed to do is, that where the Rideal-Walker test is called for, a standard technique will be adopted by all the members of the association.

The British Disinfectant Manufacturers Association has expressed no approval or otherwise of the Rideal-Walker test. The test to be made they rightly leave to the purchasers of disinfectants until such time as the Government shall take up the matter and lay down some official standard. Official control of disinfectants would be welcomed by manufacturers as affording much needed protection to purchaser and manufacturer.

British coal-tar disinfectants are at present superior to all others, chiefly because we control the bulk of the raw material, but the American control of labelling and testing is so much in advance of anything adopted in this country that it is bound to have the effect of raising the standard of American manufactured disinfectants and so become a danger to British trade.—I am, etc.,

W. NEWTON DREW,
Managing Director of Newton,
London, W.C., March 31st. Chambers, and Co., Ltd.

THE A.A.M.C. IN EGYPT.

SIR,—In the JOURNAL of January 4th, recently to hand, a statement occurs in the review of the book called "The A.A.M.C. in Egypt" by Barrett that, "as everybody knows, discipline is not the strong point of the gallant Australian fighting men." I desire to enter a protest against the publication of this statement in a journal of the standing and universality of the BRITISH MEDICAL JOURNAL. The statement is highly controversial, and in my opinion reflects an unsympathetic, narrow, and superficial judgement of the Australian soldier. Even if correct the circulation of such a criticism cannot be in the interests of the Greater Britain. What is the object of all military discipline? Is it not the training of the whole available male power of a country to a standard of fighting efficiency to enable it to successfully assert and defend itself against aggression? If this conception is correct it embraces everything in the soldier's training which makes for fighting efficiency. Fighting efficiency is the only real test of the presence or absence of discipline. Saluting is merely one of the outward and visible signs of the existence of discipline. It is emphatically not the thing itself. Can it be that your reviewer has mistaken the form for the spirit? It is not necessary for an outside observer who has lived with them in the field for over four years to certify as to the falseness of this charge of indiscipline. The dispatches of Sir Douglas Haig and Sir Edmund Allenby have put on record for all time their prowess in the field. Again and again they refer to their aggressive spirit in action, their unhesitating obedience of orders, their steadiness under fire, their capacity for enduring all forms of hardship cheerfully and doggedly—in short, they certify to the excellence of their discipline. Gallantry alone could never have placed them in their present position. Full of natural high spirits, with a sturdy independence of character and outlook which is characteristic, they may be slack in the external ritual of the British army system, but they are not indisciplined. This system, a product of a social system where class distinction is sharply defined, environment more or less cramped, and where the individual by tradition and habit is accustomed to its forms, is altogether foreign to the character of the average Australian soldier. He is drawn from a new country of great spaces where individual merit and resource largely determine his social status. He is naturally intolerant of all manner of formalism. In the

hard school of experience he has learnt the necessity for and the true meaning of discipline, but he remains as intolerant of what to him is an ostentatious symbolism utterly foreign to his nature. In expecting him to adopt the whole ritual of the British army system are we not making the old mistake of trying to put new wine into old bottles? An inherent independence of character cannot be confined to the narrow channels of an old system. Let us gladly recognize that by devious routes peculiar to their characters the soldiers of this great empire have attained to the spirit of true discipline, however different the external signs of its presence may be.—I am, etc.,

CHARLES E. HERCUS, Major N.Z.M.C.

Palestine, March 2nd.

*** The context should, we think, have made it plain that our reference was solely to discipline in camps and billets, and not to discipline in the firing line. Australian prowess in the field is the admiration of the world. Sir James Barrett in the section of his book headed Discipline, after speaking of the bravery and resourcefulness of Australians in battle and their splendid behaviour when desperately injured, says: "The convalescent Australian presents another problem, as also does the soldier waiting at the base. The lines in Dr. Watts's hymn come to mind. In these circumstances his very fine qualities cause him to give trouble. His ingenuity in breaking bounds is worthy of a better cause. . . . The hardest part of military work is waiting. . . . All thoughtful Australian officers we know tell the same story: 'Give us discipline, and again and again discipline.'"

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on February 26th.

Surgeon Vice-Admiral Sir W. H. Norman, K.C.B., Director-General Medical Department, R.N., and Surgeon Rear-Admiral Sir G. L. Cheatle, K.C.B., have been appointed Fellows of King's College.

A bequest of the late Dr. W. J. Mickle of £5,133 was accepted for the establishment in honour of his great-grandfather, William Julius Mickle, the poet, of an annual fellowship to be awarded to graduates of the university resident in London who have specially distinguished themselves in the advancement of medical art and science.

Three Beit Fellowships for Scientific Research, of the value of £175 a year each, are to be awarded. Applications must be received by the Rector, Imperial College, South Kensington, S.W.7, by May 31st.

Applications (1) for grants from the Dixon Fund for assisting scientific investigations must be received by the Academic Registrar between April 1st and May 15th; (2) for the Lindley Studentship for a student qualified to undertake research in physiology by April 30th; and (3) for the University Studentship in Physiology by May 31st.

UNIVERSITY OF DURHAM.

THE following candidates have been approved at the examinations indicated:

THIRD M.B. (*Materia Medica, Pharmacology and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology*).—C. N. Armstrong, J. E. Basham, E. C. Dagger, I. Girgis, G. Hall, Norah H. Hamilton, G. J. D. Hammond, Margaret B. Herbst, T. H. Kirk, H. L. P. Peregrine, Alice M. Stenhouse.

UNIVERSITY OF ABERDEEN.

THE following medical degrees were conferred at a graduation ceremony on March 25th:

M.D.—Burjorji Sorabji Kanga, *A. G. Reid.

M.B., CH.B.—‡† Hilda L. Laidlaw, ‡†B. Yule, Marjorie Culloden, A. R. Forbes, N. B. Gadsby, Helen M. Gray, †A. G. Morison, Margaret A. Reid, Ellen J. Saunders, J. Skinner, T. A. H. Smith, †Violet M. G. Smith, H. G. Topping.

* Commended for thesis.
† Passed Final Professional Examination with distinction.
‡† Second class honours.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—†H. E. Reburn, †C. de B. Thomson, †T. T. Tiplady.
MEDICINE.—* H. P. Hodge, †M. Ibrahim, *†H. E. Reburn, *†C. de B. Thomson.
FORENSIC MEDICINE.—O. H. Brown, H. H. Selim.
MIDWIFERY.—C. de B. Thomson, J. B. Williamson.
* Section I. † Section II.

The diploma of the society has been granted to Messrs. H. E. Reburn, C. de B. Thomson, and T. T. Tiplady.

Obituary.

JOHN GORDON, M.D.,
Aberdeen.

VERY many members of the British Medical Association far outside the city of Aberdeen, where he practised, will learn with great regret that Dr. John Gordon of Aberdeen has died unexpectedly. He had attended a luncheon on March 21st in connexion with the induction of the new incumbent of the West Parish Church and had proposed the health of the guests. Later that afternoon he was taken suddenly ill and died early on the morning of March 22nd.

John Gordon was the son of the late Mr. James Gordon of Keith and was born in 1849. He was for some years engaged in pharmacy, but always had in mind his intention to enter the medical profession. He entered Marischal College as a medical student and graduated M.B., C.M. Aberd. with honours in 1884 and M.D. in 1888. After graduating, Dr. Gordon was associated in practice with the late Dr. Henry Jackson of Aberdeen, and ultimately succeeded him in practice. He was assistant physician to the Aberdeen Royal Infirmary, and from 1908–11 was assistant professor and examiner in materia medica in the University of Aberdeen. His contributions to medical literature, all on therapeutical subjects, included a paper on the action of veratrum viride in puerperal eclampsia. He had served as physician to the Aberdeen General Dispensary and assistant surgeon to the Hospital for Sick Children in Aberdeen.

Dr. Gordon took a great interest in the British Medical Association, had been president of the Aberdeen Branch, was a member of the Central Council, had served on the Representative Body, and was a frequent attendant at the annual meetings, where his clear sincerity and genial manner won him many friends. He was an active member of the Aberdeen Medico-Chirurgical Society, and had been its president. He did much public work in Aberdeen; among other offices he was chairman of the governing body of the Aberdeen Asylum for the Blind. Dr. Gordon married Miss Maria Ogilvie, D.Sc., Ph.D., by whom and by one son and two daughters he is survived.

RALPH WINNINGTON LEFTWICH, M.D., C.M.

WE regret to record the death, on March 25th, after a short illness, of Dr. Ralph Winnington Leftwich. He studied at St. Bartholomew's Hospital and the University of Aberdeen, and afterwards visited Paris and Vienna. He graduated M.B. with honours, and C.M. at the University of Aberdeen in 1873, and took the degree of M.D. in 1875. He was house-surgeon, and afterwards for a time assistant physician, to the Shadwell Children's Hospital. Later on he engaged in general practice in Ebury Street, London, and held various medical appointments in connexion with London tramway companies. Dr. Leftwich took a keen interest and showed high capabilities in the practice of medicine. In 1888 he published *An Index of Symptoms*, which reached a seventh edition this year. Of another book, *The Pocket-Book of Treatment*, a third edition appeared in 1917. In 1913 he published a volume entitled *Tabular Diagnosis*, and in 1918 another on *Rational Therapeutics*. Dr. Leftwich was a keen student of Shakespeare's life and time, and to his paper showing that St. Saviour's, Southwark, was the poet's parish church when he lived in London, and presumably his place of worship, was due the erection of the Shakespeare Memorial there. Dr. Leftwich wrote several papers on subjects relating to Shakespeare, including one on John Hall, the physician, who was Shakespeare's son-in-law. So recently as March 19th Dr. Leftwich read before the Historical Section of the Royal Society of Medicine a paper founded on a detailed study of the authentic signatures of Shakespeare, in which it was shown that in each case there were clear indications, increasing with age, of writer's cramp; it was suggested that to this cause might properly be assigned the fact that during his last years Shakespeare added little or nothing to his earlier plays and poems, a circumstance for which no satisfactory explanation had hitherto been found. Of this paper, which was illustrated by facsimiles, an account was given in our columns on May 11th, 1918.

THE many friends of Dr. WILLIAM GEORGE CRESWELL, formerly of Birmingham and of Kingston-on-Thames, will hear with regret of his death after a few days' illness, at his house in Cobo, Guernsey, on March 17th. He studied medicine at Queen's College, Birmingham, and qualified in 1876, taking the M.D. degree at Durham University in 1892. Failing health compelled him eight or nine years ago to give up practice. After a voyage or two he settled in Cobo, and his health being somewhat restored by the climate, he took up work again, and at the time of his death had become one of the most popular practitioners in the island. He was a man of character, quick in decision, prompt in action, decided in his likes and dislikes. Though leading an active life he was a reader, a writer, a stout opponent in controversy, and a delightful letter writer to his intimates. Fond of social intercourse his wide sympathies brought him an extensive acquaintanceship, and provided him with an inexhaustible store of anecdotes that made him a most entertaining companion.

Deputy Surgeon-General SAMUEL JARDINE WYNDOWE, Madras Medical Service (retired), one of the few remaining Mutiny veterans, died at Uley, Gloucestershire, on March 19th, aged 89. He was the son of the late Captain Wyndowe, born in 1830, was educated at St. George's Hospital, where he was dresser to Frank Buckland, and took the diploma of M.R.C.S. in 1854, and the degree of M.D., King's College, Aberdeen, in 1860. He entered the I.M.S. as assistant surgeon on March 24th, 1854, became surgeon on March 24th, 1866, surgeon-major on July 1st, 1873, and brigade-surgeon, when that rank was first instituted, on November 27th, 1879, retiring with an honorary step on June 15th, 1881. The year after he went to India he was appointed to a cavalry regiment of the Nagpur Irregular Force; in 1860 he was posted to civil employment in the Central Provinces, and soon after was appointed professor of chemistry in the Madras Medical College, and chemical examiner to the Government of Madras. In August, 1867, he was given the residency surgeoncy of Haidarabad, and held that post till his retirement. He served in the Indian Mutiny from 1857 to 1859, took part in the engagement at Sambulpur, and received the Mutiny medal.

Professor CHANTEMESSE of Paris, whose death was announced in the BRITISH MEDICAL JOURNAL of March 1st, was born at Puy (Haute-Loire) in 1851. He was educated at the local lycée, where he had Emile Roux, late director of the Pasteur Institute, and Ch. Dupuy, who is a prominent figure in political life, among his schoolfellows. His father, a lace maker, wished him to go into business, but the father's death left the son free to follow his vocation, and at the age of 25 he took up the study of medicine. After a brilliant career as a student he took his doctor's degree in 1884, being awarded a silver medal for his thesis on tuberculous meningitis in the adult. A year later he became physician to the Paris hospitals. A pupil of Cornil, he devoted himself to bacteriology, and his relations with Roux led to his being selected by Pasteur to assist Grancher in the study of treatment of rabies. His researches on typhoid fever won for him the Bréant Prize of the Académie des Sciences in 1888. In 1889 he was first among the candidates for the position of agrégé in medicine. Soon afterwards he received the decoration of the Legion of Honour. In 1897 he was appointed professor of experimental pathology in succession to Strauss. His scientific publications cover a very wide field of research, especially in hygiene. He was appointed auditor in the Comité consultatif d'hygiène de France in 1887, and in 1892 became a member of that body. In the following year he was appointed assistant inspector-general of sanitary services. He was charged with several scientific missions in France, Germany, Austria, and Turkey. In the last of these he won a great diplomatic triumph by persuading the Sultan to revive French teaching in the Constantinople school of medicine, in which it had been suppressed since 1870. He established a complete course of bacteriology in the Paris Faculty, which attracted many students, French and foreign. He was also much appreciated as a clinical teacher at the Hôtel-Dieu.

Medical News.

THE Wednesday social evenings of the Royal Society of Medicine will be suspended after this week for three weeks (April 9th, 16th, 23rd).

THE Research Defence Society has moved its office to the house of the Medical Society of London, 11, Chandos Street, Cavendish Square.

THE Minister of Pensions has decided that the regulations now in force as to the supply, repair, and renewal of artificial limbs for discharged sailors and soldiers shall be extended to retired officers.

NATHANIEL OSBORNE MCCONNELL, M.B., who was found guilty and sentenced to death, for the murder of Mary Reid, at Belfast Assizes on March 24th, has been reprieved, and the sentence has been commuted to one of penal servitude for life.

AT a meeting of the Medico-Legal Society on April 29th at 8.30 p.m. Lieut.-Colonel Nathan Raw, R.A.M.C., C.M.G., M.P., will read a paper on the position of medicine in the State. Visitors will be welcomed.

A THREE months' course of lectures and demonstrations on hospital administration will be given at the Western Hospital, Seagrave Road, Fulham, by the medical superintendent, Dr. R. M. Bruce, on Tuesdays and Fridays at 5 p.m., beginning on Tuesday, April 8th. The fee for the course is £3 3s. Further particulars can be obtained on application to the Clerk to the Metropolitan Asylums Board, Embankment, E.C.

A SPECIAL meeting of the North of England Tuberculosis Society was held on March 20th at Newcastle-upon-Tyne to discuss the formation of a tuberculosis service on the lines suggested at the special conference held by the Tuberculosis Society in London on February 15th. Resolutions were passed expressing the opinion (1) that the formation of a separate tuberculosis service is not advisable, and (2) that the whole question of the status and conditions of service of those members of the public health service who are at present engaged in tuberculosis work should be referred to the Society of Medical Officers of Health for early consideration and action.

A NEW monthly journal entitled *Tubercle*—to be devoted to all aspects of tuberculosis, and intended to give tuberculosis workers an opportunity of forming a fraternity for mutual help—will appear in October next. It will contain, together with original articles, a summary of current pathological, clinical, and of sociological work. In the first few numbers an attempt will be made to present a digest of the situation during the war. The literature of tuberculosis will be reviewed, societies dealing with tuberculosis reported, and letters will appear from special correspondents abroad. The correspondence columns will be open for discussion of the problems of tuberculosis. The journal is under the general editorial direction of S. Roodhouse Gloyne, Claude Lillingston, Egbert Morland, and Stanley Tinker; the publishers are Messrs. Bale, Sons, and Danielsson, and the price is provisionally fixed at 25s. per annum, post free.

FIVE years ago the question of pensions for hospital officers was taken up by King Edward's Hospital Fund for London, at the request of the Hospital Officers' Association, and a subcommittee of three was appointed to inquire and report as to the existing provision and to make recommendations. Their report has now been published, together with a dissentient memorandum by Sir William J. Collins. They find that for various reasons the total amount paid in pensions is abnormally small for the size and importance of the hospital service in London, and that the case submitted by the Hospital Officers' Association is generally made out. The full remedy for these defects they consider to be a general scheme embracing all the hospitals. The final recommendation of the majority is that a conference of hospital representatives should consider the whole question on the basis of providing the pensions by means of insurance policies paid for by joint contributions of employers and employees, with separate administration for disablement benefit. Sir William Collins in his memorandum demurs to the proposal for a scheme based upon recourse to insurance companies.

THE Royal Sanitary Institute will hold an annual congress at Newcastle-upon-Tyne from July 28th to August 2nd, under the presidency of the Duke of Northumberland, who will give an inaugural address. There will be five sections—sanitary science and preventive medicine, engineering and architecture, hygiene of maternity and child welfare, personal and domestic hygiene, and industrial

hygiene. There will be in addition six conferences, of representatives of sanitary and port sanitary authorities, of medical officers of health, of engineers and surveyors, of veterinary inspectors, and of sanitary inspectors and health visitors. An exhibition will be held illustrating hygiene of infants and child welfare, housing, including the laying out of estates and construction, ship sanitation, municipal sanitation, and domestic health.

AT a recent meeting of the Society of Public Analysts Mr. A. W. Stokes, F.I.C., pointed out that though the food control authorities had limited the percentage of meat which might be contained in sausages to be sold at a given price, they did not limit the quantities of bread, water, and fat. The desirability of limiting the quantities of water, bread, and fat was shown by a particular sample which contained about equal parts of added water, bread, fat, and meat. Since meat contained 70 per cent. of water and bread 40 per cent., no added water, he thought, should be allowed. In the United States the use of bread in sausages was prohibited, and as the bread was often soaked in water before use, the percentage of water in the finished product was thereby increased.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

QUERIES AND ANSWERS.

CEYLON.

G. asks as to the best age to allow a boy to go to Ceylon. (1) Is the risk of enteric greater under 19? (2) How far does inoculation prevent this? (3) Should inoculation be repeated there after a year or so?

DIAGNOSIS OF TYPHUS FEVER.

DR. J. C. MCWALTER, writing from Egypt, states that, according to his observations, an early certain indication of typhus fever is the extremely dark, almost blackish, appearance of even a single drop of blood exuding from a needle-prick. He asks whether other observers have noticed this.

LETTERS, NOTES, ETC.

STEWARDS FOR THE RECEPTION BY THE METROPOLITAN COUNTIES BRANCH, TUESDAY, APRIL 8TH.

THE honorary organizer of the reception to be given by the Metropolitan Counties Branch of the British Medical Association at the Guildhall, London, on the evening of Tuesday, April 8th, asks for volunteers to act as Stewards. He has received some names, but needs sixty or seventy more. Offers should be addressed to Dr. Reginald Morton (66, Harley Street, W.1), who will hold a meeting of the Stewards at the Guildhall on April 7th, at 3.30 p.m., when he will show the rooms and explain what will be required of the Stewards. The guests will be received from 8.30 to 9 p.m. by Sir Clifford Allbutt, K.C.B., F.R.S., President of the British Medical Association, and Dr. M. G. Biggs, President of the Metropolitan Counties Branch. A lantern lecture on Old London will be given twice during the evening by Mr. G. Q. Roberts, C.B.E., Secretary of St. Thomas's Hospital; and Dr. A. C. Dove will take parties for tours of inspection of the Guildhall, including the museum, explaining points of historical and artistic interest. In the Great Hall there will be an exhibition of surgical instruments used by Lord Lister, John Hunter, and John Abernethy. There will be two concerts in the Council Chamber between 9 and 10.45, and dancing in the Art Gallery from 9 to 11. The band of the Royal Artillery will play in the Great Hall and afterwards for the dancing.

IODINE IN INFLUENZA.

DR. ANDRÉS SOBRINO of Madrid is an enthusiastic advocate of the use of iodine in the prophylaxis and curative treatment of influenza. For both purposes he prefers the tincture, given by the mouth, in quantities increasing from 5 minims every three hours to 10, 15, 20, or more every two hours. He administers it in milk. He states that he has frequently seen cases of simple influenza in adults cut short within twenty-four hours by 45 minims of the tincture, that being the dose at which iodine begins to produce good therapeutic effects. He disclaims any objection to combining this treatment with other therapeutic measures, and has employed it with good good results in association with local disinfection of the naso-pharynx and the use of inhalations. We gather that in general he administers tincture of iodine as a preventive in doses of 15 minims thrice daily, or 5 minims every three hours; and to effect a cure he increases the dose to as much as 5 drachms daily. Dr. Sobrino upholds his case with fine ardour and a wealth of glowing phrases. Indeed, he regards the exhibition of iodine according to his plan as "the fundamental treatment of all infectious diseases."

SERVICE IN MALTA.

"MELITA" writes with reference to the correspondence under this head concerning service in Malta: Without doubt conditions in Cairo and Alexandria were the height (or depth) of luxury when compared with those in Malta. Nurses and V.A.D.'s, under canvas on the island, had a comparatively rough time, while their colleagues in Egypt were sipping the delights of Shepheard's and of the Grand Continental. Like many others who sailed for Malta in April, 1915, I did not escape until February, 1916, notwithstanding frantic attempts to achieve "active" service. "Volunteer 1914" asks "Is this strictly fair?" Well, it is not! But I cannot help thinking if indent were made in triplicate on the proper A.F., more of us might display that pretty ribbon.

"VOLUNTEER 1915" writes: I fully endorse the two letters appearing under this head. I volunteered for France in 1915, and was told by the authorities that my application was accepted. Afterwards I received a communication to the effect that medical officers were urgently required for Malta, and that I could not be sent to France. On my arrival at Malta I found it a hotbed of enteric and dysentery, as your correspondent states.

PITUITRIN IN MIDWIFERY.

DR. E. ARTHUR DANDO (Dudley) writes: I have used pituitrin in 150 labours, and my experience may be of interest. The preparation I use is "infundin" (B. W. and Co.), the quantity 0.5 c.cm. I inject deeply into the buttock after the os is well dilated. Labour is shortened, the suffering of the patient lessened, and the general practitioner's time saved. I have never had any bad result.

A RATIONED WORLD.

J. W. S. writes: A little girl, aged 5, was brought to my surgery by her mother in order to have a slight injury attended to. The little girl had fallen downstairs and sustained a wound of the face which required a couple of stitches. Contrary, perhaps, to what one might expect in the circumstances, she was perfectly at ease in my surgery and not a bit afraid. While I was preparing to attend to the injury the following dialogue actually took place:

Patient: Are you the doctor that brought me to my mother when I was a little baby?
Doctor: Yes.
Patient: Have you got any more?
Doctor: I'm sorry, I haven't at present.
Patient: Can you get me one?
Doctor (taking piece of pencil and paper and pretending to write): Well, I will put your name down for one.
Patient: When will you have it?
Doctor: I don't know yet.
Patient: Where will you get it?
Doctor: I cannot say just yet.
Patient: *Shall I need a coupon?*

A THERAPEUTIC PUN.

THE printing department of a special surgical (orthopaedic) centre has produced a little placard which makes a punning appeal to the disabled—thus:

WORK LIKE
HELEN B. HAPPY.

THE following appointments of certifying factory surgeons are vacant: Clay Cross (Derby), Glasgow, S.E. (Lanark), Hinckley (Leicester), Staveley (Derby), Tollcross (Lanark).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	6	0
Each additional line	0	0	9
Whole single column	4	0	0
Whole page	12	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.